

ADB Clean Energy Investments in 2003

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Sector	Country	Loan No.	Project Name	Description of Project and Clean Energy Benefits	Total Loan Amount (\$million)	% CE	CE Investment (\$million)	Approval Date
PUBLIC PROJECTS								
Renewable Energy								
NONE								
Demand Side Energy Efficiency								
Water and other Municipal Infrastructure and Services	IND	2046	Urban Water Supply and Environmental Improvement in Madhya Pradesh	The Project will address citywide deficiencies in basic urban services for six of the largest urban centers in Madhya Pradesh. Direct social benefits will be sustained improvements in water supply, sanitation, garbage collection, and disposal within the project cities. Increased energy efficiency will come from the replacement or rehabilitation of outdated and inefficient pumps and plants.	200,00	2%	4,00	12-Dec-03
Agriculture and Natural Resources	UZB	2069	Amu Zang Irrigation Rehabilitation Project (formerly Amu Zang Water Resources Management Project)	The Project supported private farms in five project districts by rehabilitating the irrigation infrastructure to improve the farms' efficient use of water and ensure fair distribution of water. Energy efficiency benefits arise from the rehabilitation of the pumping stations with newer, more efficient pumps. This increased efficiency will reduce the cost of energy used by the pumps by about \$495,000 per year.	73,20	8%	6,00	14-Dec-03
Transport and ICT and ICT	PRC	2051	Yichang-Wanzhou Railway Project	The Project is a new 377-km railway linking Yichang and Wanzhou, using main line electric locomotives. By using electric locomotives instead of diesel, and based on estimates of traffic diverted from the highways to this railway, the project's environmental impact assessment has concluded that the it will save on 10,488,850 tons of CO2 from being emitted.	500,00	10%	50,00	15-Dec-03
Water and other Municipal Infrastructure and Services	FIJ	2055	Suva Nausori Water Supply and Sewerage Project	The Project will increase the delivery of safe water supply and sewerage services in the Suva–Nausori urban area. It will also institute reforms towards enhancing the sustainability of the water supply and sewerage services in the Fiji Islands. A more efficient delivery system for water and services will result in energy savings through the system.	47,00	12%	5,80	18-Dec-03
Supply Side Energy Efficiency								
Energy	LAO	2005	Northern Area Rural Power Distribution	The Project aims to strengthen and expand transmission and distribution facilities, in order to provide electricity efficiently and reliably to rural villages and towns without access. Along with the clean energy benefits of new, efficient transmission lines, the electrification of villages will allow them to reduce their use of biomass and fuels like kerosene and diesel.	30,00	5%	1,50	18-Sep-03

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PUBLIC PROJECTS								
Energy	BHU	2009	Rural Electrification Network Expansion	The Project is a rural electrification project that will give about 8,000 households access to electricity through Bhutan's run of river hydro power generators. As Bhutan generates significantly more power than it consumes, all the excess power generated is sold to India, allowing for maximization of renewable energy resources and the displacement of coal power in India by hydropower.	9,40	100%	9,40	30-Sep-03
Energy	IND	2037	Assam Power Sector Development Program (Project Loan)	The program component seeks an adequate, reasonably priced, efficiently supplied flow of electricity to all consumers in the state of Assam through the financial restructuring of the Assam State Electricity Board. Greater energy efficiency reduces overall energy needs and thus, the emission of greenhouse gases.	100,00	9%	9,00	10-Dec-03
Large Hydropower								
Energy	PRC	2032	Gansu Clean Energy Development Project	The Project is located in Gansu Province and involves the construction of the 98-megawatt (MW) run-of-river Xiaogushan Hydropower Plant (XHP) by the Xiaogushan Hydropower Company (XHC); upgrading power supply to three poor townships (Xishui, Huazhai, and Anyang) for more reliable electricity directly from XHP.	35,00	86%	30,22	05-Dec-03
Sub Total					994,60		115,92	
Efficiency in Fossil Fuels								
NONE								
Cleaner Fuels								
Energy	BAN	2039	Power Sector Development Program (Project Loan)	Alongside the construction of power generators, and a load dispatch center, the project seeks the renovation, upgrading, and extension of distribution in multiple towns in northwest Bangladesh. An improvement in the distribution system will result in increased energy efficiency, reducing greenhouse gas emissions.	186,00	47%	87,00	10-Dec-03
Public Sector Total					1 180,60		202,92	

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PRIVATE PROJECTS								
Renewable Energy								
NONE								
Demand Side Energy Efficiency								
NONE								
Supply Side Energy Efficiency								
Energy	IND	7185/2016	Tala-Delhi Transmission	The Project is to construct and operate approximately 1,113 km of 400 kV, D/C power transmission lines and about 20 km of 220 kV D/C power transmission lines from Siliguri, West Bengal to Mandaula near Delhi. These lines will evacuate hydropower generated at Tala, allowing renewable energy to benefit a greater share of the population.	62,00	5%	3,00	16.Jan.03
Other								
Finance	REG	7187	FEGACE Asian Sub Fund LP	The FEGACE Asian Sub-Fund LP, will provide risk sharing to local financial institutions in order to catalyze private sector funding in clean energy initiatives. This will support the development of the energy-efficiency and renewable-energy markets in Asia.	20,00	100%	20,00	02-Dec. 2003
Sub Total					82,00		23,00	
Large Hydropower								
NONE								
Efficiency in Fossil Fuels								
NONE								
Cleaner Fuels								
NONE								
Private Sector Total					82,00		23,00	
TOTAL (2003)					1 262,60		225,92	

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PUBLIC PROJECTS								
Renewable Energy								
Agriculture and Natural Resources	PRC	2082	Fujian Soil Conservation and Rural Development II	This project supports Fujian's focus on sustainable agricultural development in the province's upland areas. The key clean energy component is the rehabilitation and development of small hydropower schemes as renewable power sources. There are nine sub-projects with approved ADB support.	80,00	19%	15,26	24-Apr-04
Demand Side Energy Efficiency								
Transport and ICT	PRC	2116	Dali-Lijiang Railway Project	The Project will develop an efficient, safe, and environmentally sustainable railway Transport and ICT system in the northwestern part of Yunnan province. Clean energy benefits are numerous: the railway is estimated to reduce emissions of CO2 by 98.1% in comparison to a "car plus truck" transit system along the same route. Additionally, solar energy and hydropower will be used to supply hot water and heat to stations and depots.	180,00	10%	18,00	02-Dec-04
Water and other Municipal Infrastructure and Services	AZE	2120/2119	Urban Water Supply and Sanitation	This project will increase access to a safe and reliable water supply as well as improved sewerage services to the population of Agdash and Goychay towns. Clean energy benefits will arise from the replacement of dilapidated and inefficient water distribution systems in Agdash and Goychay, and upgrade the system in Nakhchivan. New and efficient systems will use less energy in delivering water.	30,00	27%	8,00	07-Dec-04
Agriculture and Natural Resources	TAJ	2124	Irrigation Rehabilitation Project	The Project will rehabilitate selected irrigation and drainage facilities. The clean energy component comes from the greater efficiency of these new pumps and the conversion of some pumps to a gravity supply system. This increased efficiency will reduce the energy cost of pumping by an estimated \$1,312,500 per year.	22,72	5%	1,14	10-Dec-04
Multisector	IND	2151	Multi-sector Project for Infrastructure Rehabilitation in Jammu and Kashmir	The Project targets the rehabilitation of existing infrastructure and utility facilities needed to deliver a minimum water service in the two main cities, Jammu and Srinagar, and the rehabilitation of key roads and bridges in 14 districts. The rehabilitation/ replacement of old and inefficient pumping machinery and dilapidated pipelines that are common in the area will increase the energy efficiency of the water delivery system, conserving energy and reducing costs.	250,00	16%	39,40	21-Dec-04

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Sector	Country	Loan No.	Project Name	Description of Project and Clean Energy Benefits	Total Loan Amount (\$million)	% CE	CE Investment (\$million)	Approval Date
PUBLIC PROJECTS								
Supply Side Energy Efficiency								
Energy	VIE	2128	Northern Power Transmission (Sector) Project	The majority of energy produced in the north of Viet Nam is supplied through hydropower. This Project funds the expansion and upgrading of the transmission systems, to broaden the use of renewable energy. A modern grid will also be more energy efficient.	120,00	5%	6,00	13-Dec-04
Energy	IND	2152	Power Grid Transmission (Sector) Project	The Project represents a 5-year time slice of POWERGRID's National Transmission Development Plan (NTDP) covering strengthening and expansion through transmission lines and associated substations. A modern energy grid will allow for more efficient distribution of electricity with fewer transmission losses, conserving energy and reducing emissions from power generation.	400,00	5%	20,00	21-Dec-04
Multisector	PAK	2153	Multisector Rehabilitation Project for Azad Jammu & Kashmir	The Project targets the rehabilitation of existing infrastructure and utility facilities needed to deliver a minimum water service in the two main cities, Jammu and Srinagar, and the rehabilitation of key roads and bridges in 14 districts. The rehabilitation/ replacement of old and inefficient pumping machinery and dilapidated pipelines that are common in the area will increase the energy efficiency of the water delivery system, conserving energy and reducing costs.	57,00	35%	19,80	21-Dec-04
Sub Total					1 139,72		127,60	
Large Hydropower								
NONE								
Efficiency in Fossil Fuels								
NONE								

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Sector	Country	Loan No.	Project Name	Description of Project and Clean Energy Benefits	Total Loan Amount (\$million)	% CE	CE Investment (\$million)	Approval Date
PUBLIC PROJECTS								
Cleaner Fuels								
Multisector	FSM	2100/2099	Omnibus Infrastructure Development	The Project includes a power rehabilitation component to take place on the state island capital of Chuuk. In general, the system is inefficient and near collapse. Electricity is needed to pump water to consumers, for government operations, and for hospitals and schools. This rehabilitation of the power sector will also facilitate the rehabilitation of the water sector, leading to greater efficiency throughout.	19,00	28%	5,40	05-Nov-04
Energy	PRC	2112	Liaoning Environment Improvement Project	The Project covers six cities in Liaoning province and includes the development and utilization of coal bed methane (CBM) and coal mine methane (CMM) in Fuxin. It is estimated that the coal mines in Liaoning released about 1.2 billion cubic meters (m3) of methane into the atmosphere in 2003, a figure expected to reach 2.0 billion m3 by 2010. Part A of the Project is designed to utilize CBM/CMM to reduce greenhouse gas emissions and improve coal mine safety.	70,00	66%	46,06	25-Nov-04
Energy	PRC	2146	Coalmine Methane Demonstration Project	This Project's clean energy component deals with the development and utilization of coal bed methane (CBM) and coal mine methane (CMM) in Fuxin. This methane will be commercially extracted for use as an economic source of energy. This not only taps into a natural gas for energy use, but also prevents the release of billions of cubic meters of methane into the atmosphere.	117,40	100%	117,40	20-Dec-04
Public Sector Total					1 346,12		296,46	

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PRIVATE PROJECTS								
Renewable Energy								
NONE								
Demand Side Energy Efficiency								
NONE								
Supply Side Energy Efficiency								
NONE								
Sub Total					-		-	
Large Hydropower								
NONE								
Efficiency in Fossil Fuels								
NONE								
Cleaner Fuels								
Energy	IND	7192	Petronet LNG Ltd (Dahej LNG Terminal Project)	The Project involves the construction and operation of a liquefied natural gas import and regasification terminal with a capacity of 5.0 million metric tons per annum at Dahej in the State of Gujarat. By providing cleaner fuels at a lower cost, this project supports India's sustainable economic development, as diesel engines and generators give way to LNG power which has lower emission levels.	9,70	100%	9,70	13.Jan.04
Private Sector Total					9,70		9,70	
TOTAL (2004)					1 355,82		306,16	

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PUBLIC PROJECTS								
Renewable Energy								
NONE								
Demand Side Energy Efficiency								
Transport and ICT	PRC	2182	Zhengzhou-Xi'an Railway Project	The Project will construct a railway line from Zhengzhou in Henan to Xi'an in Shaanxi. Clean energy benefits arise from the development of a rail system versus an expansion of roads. If the projected atmospheric emissions from electric trains (and from the power grid) are compared with those from the buses needed to Transport and ICT the same number of passengers, trains are still the cleaner choice.	400,00	10%	40,00	22.Sep.05
Water and other Municipal Infrastructure and Services	PAK	2211/2212	Rawalpindi Environmental Improvement	The Project will improve living conditions in Rawalpindi, a city of about 2.2 million people adjoining Islamabad in Punjab province. One part will improve the local water supply through the replacement of about 40 contaminated and/or inefficient tubewells and rehabilitation of an existing 35 tubewells as well as the rehabilitation of existing pipelines. These efforts at improving the efficiency of the water delivery system translate into corresponding energy savings.	60,00	10%	5,70	13.Dez.05
Water and other Municipal Infrastructure and Services	IND	2226	Kerala Sustainable Urban Development (formerly Urban Infrastructure Development and Environment II)	The Project involves the improvement, upgrading and expansion of existing urban infrastructure facilities and basic urban environmental services in five municipal corporations and 53 urban municipalities of the State of Kerala. Efficient water delivery systems will reduce the energy use of the water transmission system. Improvements in roads and public Transport and ICTation (bus) will reduce traffic congestion, improving travel times and lowering fuel use and vehicular emissions.	221,20	1%	2,84	20.Dez.05
Supply Side Energy Efficiency								
Energy	AFG	2165	Power Transmission and Distribution Project	The Project will construct and rehabilitate 206 kilometers of transmission network, and rehabilitate the associated substations and distribution systems in 11 rural towns and adjacent rural areas in the northern, eastern, and southern provinces. The Project will connect 90,700 new consumers, most of whom are poor, to the grid and, in addition, will allocate 18,000 electricity connection kits, which contain compact fluorescent lights to promote efficiency in electricity use.	26,50	5%	1,33	14.Abr.05

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PUBLIC PROJECTS								
Energy	VIE	2225	Northern Power Transmission Expansion (Sector) Project	The majority of energy produced in the north of Viet Nam is supplied through hydropower. This Project funds the expansion and upgrading of the transmission systems, to broaden the use of renewable energy. A modern grid will also be more energy efficient.	360,00	5%	18,00	21.Dez.05
Sub Total					1 067,70		67,87	
Large Hydropower								
Energy	LAO	2162	Greater Mekong Sub-Region NamTheun 2 HydroElectric Project	The Project includes the development, construction, and operation of a 1,070-megawatt trans-basin diversion power plant on the Nam Theun River, a tributary of the Mekong. The project will allow the export of 5,354 GWh of electricity to Thailand and provide 200 GWh of electricity to Lao PDR consumers by 2010. Both countries benefit from this increase in their power mix from renewable energy.	20,00	100%	20,00	04.Abr.05
Efficiency in Fossil Fuels								
NONE								
Cleaner Fuels								
Energy	BAN	2188/2189	Gas Transmission and Development Project	The Project supports the greater use of cleaner fuels through the construction of 353 kilometers of gas transmission pipelines for Transport and ICTing 360 million cubic feet per day of natural gas to the less developed region of the country. This will result in an increased percentage of population using gas as primary fuel from 6% to 10% by 2012, reducing their dependency on diesel, kerosene or the burning of biomass.	230,00	79%	181,60	27.Okt.05
Public Sector Total					1 317,70		269,47	
PRIVATE PROJECTS								
Renewable Energy								
NONE								
Demand Side Energy Efficiency								
NONE								
Supply Side Energy Efficiency								
NONE								
Sub Total					0,00		0,00	

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PRIVATE PROJECTS								
Large Hydropower								
Energy	LAO	7210	Nam Theun 2 Power Company Limited	The Project includes the development, construction, and operation of a 1,070-megawatt trans-basin diversion power plant on the Nam Theun River, a tributary of the Mekong. The project will allow the export of 5,354 GWh of electricity to Thailand and provide 200 GWh of electricity to Lao PDR consumers by 2010. Both countries benefit from this increase in their power mix from renewable energy.	100,00	100%	100,00	04.Abr.05
Energy	PAK	7222	Laraib Energy Ltd./New Bong Escape Hydropower Project	The Project includes the development, construction and operation of a run-of-the-river, low-head, 79 MW hydro electric power-generating complex. This Project will supply renewable energy to the nearby Gujranwala Electric Power Company (GEPCO) load center, meeting the needs of the grid through a renewable energy source.	37,30	100%	37,30	21.Nov.05
Efficiency in Fossil Fuels								
NONE								
Cleaner Fuels								
Energy	INO	7224	Tangguh LNG Project	The Project, which will be located in Papua, Indonesia, is to develop, build and operate gas production wells, platforms and a liquefied natural gas facility for the purpose of producing gas for export. By providing a supply of cleaner fuel - liquid natural gas - for use, this project promotes clean energy among prospective buyer countries - the PRC and Korea.	350,00	100%	350,00	14.Dez.05
Private Sector Total					487,30		487,30	
TOTAL (2005)					1 805,00		756,77	

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Sector	Country	Loan No.	Project Name	Description of Project and Clean Energy Benefits	Total Loan Amount (\$million)	% CE	CE Investment (\$million)	Approval Date
PUBLIC PROJECTS								
Renewable Energy								
Energy	PAK	2286/2287	Renewable Energy Development Sector Investment Program - Project I	This investment program Project seeks inclusive economic growth in Pakistan through the development of the renewable energy sector and a corresponding reduction in CO2 emissions. Clean energy targets include avoiding 175,000 tons of CO2 annually from 2011, which will rise to 775,000 tons annually 2017 onwards. The Project also seeks to increase the use of renewable energy sources in total national power generation from 0.9% in 2005 to 3.5% in 2015.	115,00	100%	115,00	13-Dec-06
Demand Side Energy Efficiency								
Water and other Municipal Infrastructure and Services	PRC	2237	Shandong Hai River Basin Pollution Control	This project deals with pollution issues surrounding the Hai River Basin and Bohai Bay. Its clean energy component concerns the installation of systems for proper landfill gas extraction and flare and utilization systems. Landfill gas emissions, produced by the decomposition of organic waste, are mostly methane. This project reduces emissions and creates a source of clean energy for the area.	80,00	0,4%	0,30	21-Jun-06
Agriculture and Natural Resources	UZB	2245/2246	Land Improvement	The Project will introduce integrated land and water management in nine districts in Bukhara, Kashkadarya, and Navoi provinces, in order to arrest land degradation. Its clean energy component focuses on the creation of energy efficient water delivery systems for irrigation purposes.	60,20	3%	1,81	24-Jul-06
Transport and ICT	PRC	2274	Taiyuan-Zhongwei Railway Project	The Project is designed to promote sustainable economic growth by constructing 944 kilometers of railway line from Taiyuan in Shanxi to Zhongwei and Yinchuan in Ningxia. The Project will develop an efficient, safe, affordable, and environmentally sustainable railway Transport and ICT system in the region with projected fuel savings of 1.16 million tons of oil equivalent (mtoe) in 2012, and 1.85 mtoe in 2020; and reduced CO2 emissions by 34,000 tons in 2012, and 56,000 tons in 2020.	300,00	10%	30,00	23-Nov.-08

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PUBLIC PROJECTS								
Supply Side Energy Efficiency								
Energy	PRC	2260	Inner Mongolia Autonomous Region Environmental Improvement	The Project, set in the municipalities of Wuhan and Bayannur in the Inner Mongolia Autonomous Region seeks the improvement of central heating supplies as well as improved gas transmission/distribution. Its clean energy component is concerned with the substitution of coal fired household stoves with central heating and/or gas stoves. It also seeks the closure of 396 small inefficient coal-fired boilers. An annual emission reduction of 787,243 t of CO2 in the project area is predicted from these changes.	120,00	81%	97,07	29-Sep-06
Energy	CAM	2261	Second Power Transmission and Distribution Project	This project supports the extension of the nation power grid into Sihanoukville, Cambodia's only deep-sea port, which currently gets its power from a small, isolated power system based on diesel generators. Additionally, some 25,000 people in the area will also be served by the extended power grid, allowing them to phase out the use of diesel generators.	20,00	5%	1,00	04-Oct-06
Energy	PAK	2289/2290	Power Transmission Enhancement- Project I	This Project is designed to provide all grid-connected consumers with an adequate and reliable supply of electricity that is in full compliance with the grid code and transmission license by 2011. The Project will enhance the efficiency of the overall power transmission system, which will result in extensive gains in efficiency considering the level of population coverage.	236,00	5%	11,80	13-Dec-06
Energy	REG	2303	Regional Power Interconnection Project (AFG/TAJ)	The proposed project will connect the Afghanistan and Tajikistan grids by double circuit transmission line allowing both countries to benefit from the hydropower stations in Tajikistan. This promotion of renewable energy is beneficial as it creates income for Tajikistan and provides clean, lower cost power for Afghanistan, sourced from hydropower plants across the border.	21,50	5%	1,08	19-Dec-06
Energy	REG	2304	Regional Power Interconnection Project (AFG/TAJ)	The proposed project will connect the Afghanistan and Tajikistan grids by double circuit transmission line allowing both countries to benefit from the hydropower stations in Tajikistan. This promotion of renewable energy is beneficial as it creates income for Tajikistan and provides clean, lower cost power for Afghanistan, sourced from hydropower plants across the border.	35,00	5%	1,75	19-Dec-06
Sub Total					987,70		259,80	

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PUBLIC PROJECTS								
Large Hydropower								
Energy	PRC	2296	MFF-Gansu Heihe Rural Hydropower Development Investment Program [(previously known as "Gansu Heihe Hydropower Development Project") Project 1]	The Investment Program will partially finance the Heihe river cascade hydropower development scheme, with seven discrete run-of-river medium hydropower plants. This will develop renewable energy resources equal to an aggregated 645.5 megawatts of hydropower. This renewable energy source will support economic growth in the rural areas of Gansu Province and contribute to the increase in the use of clean and renewable energy increased from the current 19% to 23% by 2015.	22,00	100%	22,00	18-Dec-06
Efficiency in Fossil Fuels								
NONE								
Cleaner Fuels								
NONE								
Public Sector Total					1 009,70		281,80	
PRIVATE PROJECTS								
Renewable Energy								
NONE								
Demand Side Energy Efficiency								
NONE								
Supply Side Energy Efficiency								
NONE								
Sub Total					-		-	
Large Hydropower								
NONE								

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PRIVATE PROJECTS								
Efficiency in Fossil Fuels								
Energy	IND	7242/2249	NTPC Capacity Expansion Financing Facility	This loan to NTPC Limited, India's largest power producer, will finance a portion of NTPC's capacity expansion program, namely: the 2,980 MW Sipat Super Thermal Power Project (Stages 1 and 2) in Chhattisgarh state and the Kahalgaon Super Thermal Power Project Stage II extension (1,500 MW) in Bihar state. The use of newer, emission reduction technologies along with efficiency increases in plant technology shall lower the greenhouse gas emissions of these plants compared to conventional coal-fired power stations.	300,00	30%	89,00	27.Jul.06
Cleaner Fuels								
Energy	IND	7227	Central Uttar Pradesh Gas Limited (CUGL)	The Project involves the construction of a city gas distribution networks in and around Kanpur, India to deliver compressed natural gas to vehicles and piped natural gas to commercial, industrial and residential users. It is expected this will improve the ambient air quality in Kanpur by reducing suspended particulate matter as automobiles switch to natural gas as a fuel. Large gains for clean energy are expected if this project results in a progressive increase in the share of natural gas used relative to fuels such as diesel, gasoline, and kerosene.	2,60	100%	2,60	17.Jan.06
Energy	IND	7245/2256	Petronet LNG Limited for the Dahej LNG Terminal Expansion Project	The Project involves the expansion initially of an existing liquid natural gas import and regasification terminal with a capacity of 5 million metric tons per annum at Dahej, Gujarat. This expansion will increase the available supply of low carbon fuel, which will allow for more people to shift to using this source of clean energy. It will also diversify the energy base. The Project expects an increase in the use of natural gas from 8% to 15% by 2011.	150,00	89%	134,00	30.Aug.06
Energy	PRC	7244/2255	China Gas Holdings Limited/Central Asia Natural Gas ShenZhen Company Limited/Zhongran Investment Limited for the municipal gas infrastructure development	This Project will help the investee company's to establish, acquire and operate natural gas distribution services in municipalities through joint ventures with municipal governments and state-owned enterprises across the PRC. The project aims to spread the use of natural gas, by increasing ease of access and increasing the available supply. Renewable power is promoted as more people shift from fuels like diesel or biomass to using natural gas to meet their energy needs.	150,00	100%	150,00	30.Aug.06
Private Sector Total					602,60		375,60	
TOTAL (2006)					1 612,30		657,40	

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PUBLIC PROJECTS								
Renewable Energy								
Energy	IND	2309	MFF - Uttarakhand Power Sector Investment Program (Subproject 1)	The generation expansion program is dominated by low-carbon power generation operations, and energy efficiency improvements in the form of renovation and system loss reduction. While most of the new hydropower capacity during the first phase will come from large (more than 100 MW) and medium (25–100 MW) plants, the program includes small run of river hydropower plants (3–25 MW). Energy efficiency improvements will also be pursued by renovating, modernizing, and upgrading existing hydropower plants.	41,92	100%	41,92	02.Jan.07
Demand Side Energy Efficiency								
Water and other Municipal Infrastructure and Services	IND	2331	MFF-Jammu & Kashmir Urban Sector Development Program (Subproject 1)	The Project targets the rehabilitation of existing infrastructure and utility facilities needed to deliver a minimum water service in the two main cities, Jammu and Srinagar, and the rehabilitation of key roads and bridges in 14 districts. The rehabilitation/ replacement of old and inefficient pumping machinery and dilapidated pipelines that are common in the area will increase the energy efficiency of the water delivery system, conserving energy and reducing costs.	42,20	11%	4,80	04.Jan.07
Multisector	IND	2312	MFF- North Karnataka Urban Sector Investment Program (subproject 1)	The Investment Program will assist the Government of Karnataka in meeting its urban sector investment plan and providing water supply systems, sewerage systems, drainage, and urban road resurfacing and junction improvements. Efficient urban infrastructure systems will be supported in order to save on energy. This includes more efficient water delivery systems and moves to decongest roads, lowering travel and idling times for vehicles.	33,00	25%	8,25	26.Jan.07
Water and other Municipal Infrastructure and Services	ARM	2363	Water Supply and Sanitation Sector Project	The Project will cover 16 towns and 125 villages in seven provinces, providing water supply and sewerage services to about 576,000 people. A component of the Project focuses on improving the operating efficiency of water service providers by increasing the efficiency of the system, and lowering unaccounted for water. This leads to energy savings throughout the system.	36,00	41%	14,80	31.Okt.07

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PUBLIC PROJECTS								
Multisector	IND	2366	MFF-Rajasthan Urban Sector Development Investment Program (Subproject 1)	The Investment Program is designed to improve the urban environment and promote ongoing reforms for sustainable, efficient, and responsive urban service delivery in the identified areas in Rajasthan. The replacement of inefficient pumping machinery will allow for greater energy efficiency and energy conservation in the delivery system.	60,00	24%	14,48	08.Nov.07
Water and other Municipal Infrastructure and Services	BAN	2382/2383	Dhaka Water Supply Sector Development Program (Program & Project Loan)	This project supports (among other components) an overhaul of the city's aged distribution system which has an estimated loss rate of 40%. New and efficient water systems will be installed which will use less energy overall, conserving power, reducing costs and lowering emissions from power generation.	200,00	23%	46,05	10.Dez.07
Supply Side Energy Efficiency								
Energy	IND	2324	MFF - Madhya Pradesh Power Sector Investment Program (Tranche 2)	This Project looks to increase efficiency in power transmission, in order to address the growing power demand in the region. One aim is for the energy deficit to be reduced from 13% in 2007 to 0% in 2012. In this case, increased efficiency can prevent the need for the additional power capacity such as the construction of a new power plant.	45,00	100%	45,00	04.Abr.07
Energy	IND	2347	MFF - Madhya Pradesh Power Sector Investment Program (Tranche 4)	This Project looks to increase efficiency in power transmission, in order to address the growing power demand in the region. One aim is for the energy deficit to be reduced from 13% in 2007 to 0% in 2012. In this case, increased efficiency can prevent the need for the additional power capacity such as the construction of a new power plant.	90,00	31%	28,00	21.Aug.07
Multisector	PRC	2360	Jilin Urban Environmental Improvement Project	This is an extensive project covering urban infrastructure systems. Its clean energy component focuses on reducing air pollution through a reduction in coal consumption and more efficient central heating by replacing existing coal boilers with more efficient large scale, gas powered, heating systems.	100,00	13%	12,74	29-Oct.07
Energy	SAM	2368	Power Sector Expansion Project	The Power Sector Expansion Project will help provide sustainable and reliable electricity services to all consumers in Samoa. The clean energy component focuses mainly on demand-side energy efficiency - conservation of energy among consumers rather than service providers. This project also supports renewable energy in Samoa, whose potential is currently underutilized.	26,61	41%	10,86	27.Nov.07

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Sector	Country	Loan No.	Project Name	Description of Project and Clean Energy Benefits	Total Loan Amount (\$million)	% CE	CE Investment (\$million)	Approval Date
PUBLIC PROJECTS								
Energy	PAK	2396	MFF-Power Transmission Enhancement -Project II	This Investment Program focuses on improving power transmission in order to facilitate the efficient and effective evacuation of power from existing power stations in Pakistan. Greater energy efficiency is a key component of this project, as Pakistan is a net-importer of energy and greater efficiency will allow the country to make the most of its existing power stations.	220,00	5%	11,00	17.Dez.07
Sub Total					894,73		237,90	
Large Hydropower								
NONE								
Efficiency in Fossil Fuels								
NONE								
Cleaner Fuels								
Energy	BAN	2332/2333/2334	Sustainable Power Sector Development Program	This project supports policy actions to help improve the sustainability of Bangladesh's power sector through financial and organizational restructuring. The loan also supports the construction of two natural gas-fired power plants, a 150-MW peaking power plant in Sirajganj and another 150-MW peaking power plant in Khulna by 2009. This will allow renewable energy sources to contribute towards the country's power generation capacity which is currently insufficient to meet its needs.	465,00	34%	157,73	26.Jun.07
Public Sector Total					1 359,73		395,63	
PRIVATE PROJECTS								
Renewable Energy								
Energy	IND	7253	Tata Power Wind Energy Financing Facility	The benefits of the proposed loan include the addition of 100 MW of wind power generating capacity to help reduce the energy supply deficit in India. This development of new renewable energy sources will decrease fossil fuel consumption and reduce the emissions of greenhouse gases and other pollutants. This project also helps demonstrate the successful implementation of large-scale wind power projects by the private sector.	79,30	100%	79,30	17.Abr.07

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Sector	Country	Loan No.	Project Name	Description of Project and Clean Energy Benefits	Total Loan Amount (\$million)	% CE	CE Investment (\$million)	Approval Date
PRIVATE PROJECTS								
Demand Side Energy Efficiency								
Water and other Municipal Infrastructure and Services	INO	7262	PT PAM LYONNAISE JAYA (PALYJA) (West Jakarta Water Supply Development Project)	The program will focus on improving water supply service to existing customers and extending service delivery to new customers. The clean energy component aims at promoting energy efficiency and water-saving in operations to reduce overall energy use.	50	20%	10,00	31.Aug.07
Energy	PRC	7271	Energy Efficiency Multi-project Financing Program	The Program will set up systems and framework agreements to provide increased access to financing for energy efficiency projects in PRC, with the help of partner commercial banks. The ADB will be sharing risks with these partner banks to fund projects focused on increasing energy efficiency in buildings to promote urban energy efficiency overall.	107,00	100%	107,00	14.Dez.07
Supply Side Energy Efficiency								
Energy	PAK	7254	PAK: Karachi Electric Supply Company Ltd. (KESC) Post privatization rehabilitation, upgrade and expansion	The proposed assistance will finance the turnaround of KESC, a loss-making, integrated utility with an exclusive license to supply electric power to the city of Karachi and surrounding areas. More energy efficient systems will be introduced for thermal power generation in KESC's supply mix, and there will be a reduction in use of older and less efficient generation units. Improved efficiency in the transmission and distribution network is also a project component. This will reduce greenhouse gases from power generation and allow for a smaller input/output ratio of energy to electricity consumed in Karachi.	150,00	20%	29,40	29.Mee.07
Energy	CAM	7256	CTPL Power Transmission Project	The Project comprises the construction of a transmission line, three substations, and one switching station as part of Cambodia's Power Transmission Master Plan. This new, modern system will be efficient and reduce emissions from power generation.	8,00	5%	0,40	27.Jun.07
Sub Total					394,30		226,10	
Large Hydropower								
NONE								
Efficiency in Fossil Fuels								
Energy	PAK	7265	Daharki Power Project	The Project involves construction of a 175MW gas-fired combined cycle power plant at Daharki, some 15 km away from the Mari gas fields. The Project aims to help meet a growing energy deficit in Pakistan by adding some 175 MW of generation capacity. The commissioning of a cleaner gas fired plant with its own assured domestic gas supply allows for Pakistan to meet its energy needs with renewable power as well as increasing its energy security.	46,75	100%	46,75	30.Okt.07
Private Sector Total					441,05		272,85	
TOTAL (2007)					1 800,78		668,48	

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Sector	Country	Loan No.	Project Name	Description of Project and Clean Energy Benefits	Total Loan Amount (\$million)	% CE	CE Investment (\$million)	Approval Date
PUBLIC PROJECTS								
Renewable Energy								
Energy	IND	2415	MFF - National Power Grid Development Investment Program (Tranche 1)	This extensive project developing India's National Power Grid has a clean energy component that deals with improving the overall power system efficiency of India's northern and western regions by establishing a high-efficiency transmission infrastructure. Other efficiency improvements will result from upgrading the transmission network in Uttarakhand. Greater energy efficiency at this scale will contribute greatly in terms of energy conserved and emissions reduced.	400,0	100%	400,0	28-Mar-08
Multisector	PRC	2428	Integrated Ecosystem & Water Resources Mgt. in the Baiyangdian Basin Project	The Project will demonstrate an innovative integrated ecosystem and water resources management approach to improve the environmental conditions in Baiyangdian Basin. One of the subprojects involves the development of geothermal power in the area as a renewable energy source. This geothermal power will heat residential and public buildings, with half of the carbon credits revenues it makes allocated for poverty reduction in Xiong County.	100,0	7%	6,6	24-Jun-08
Energy	IND	2498	Uttarakhand Power Sector Investment Program (sub-project II)	This project enables the construction of new small hydropower plants that will provide additional clean power to local grids in rural areas. This project is estimated to serve more than 12 million people in the Uttarakhand area and meet about one third of the projected nonindustrial power demand in the state at the time of commissioning.	62,4	100%	62,4	23-Dec-08
Demand Side Energy Efficiency								
Multisector	IND	2410	MFF - Uttarakhand Urban Sector Development Investment Program (Tranche 1)	The Investment Program is designed to improve the quality of life of urban residents and promote sustainable, efficient, and responsive service delivery in the urban areas of Uttarakhand. The clean energy component focuses on efficiency improvements in the delivery of water and reduction of water losses to conserve energy. Issues of traffic congestion and air pollution are also covered, with the project seeking improvements in roads and traffic management.	60,0	35%	21,1	01-Feb-08
Multisector	PRC	2420	Xinjiang Municipal Infra. & Env. Improvement	The Project aims to remove infrastructure constraints, address environmental concerns, and promote sustainable economic growth in three of Xinjiang's border cities and areas. Clean energy benefits arise from increased efficiency in the delivery of the water supply, management of wastewater, and water heating facilities to reduce energy used.	105,0	9%	9,8	23-Apr-08

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Sector	Country	Loan No.	Project Name	Description of Project and Clean Energy Benefits	Total Loan Amount (\$million)	% CE	CE Investment (\$million)	Approval Date
PUBLIC PROJECTS								
Transport and ICT	PAK	2424	Preparing Lahore Rapid Mass Transit System	This project supports the recruitment of a transaction advisor for the first priority line of a proposed rapid mass transit system in Lahore. As an electric mass transit rail system, this project avoids greenhouse gas emissions, and allows the thousands of people expected to utilize it to avoid the use of cars.	6,0	20%	1,2	04-Jun-08
Energy	PRC	2426	MFF - Guangdong Energy Efficiency and Environment Improvement (Tranche 1)	This Project supports the improvement of energy security and environmental conditions in Guangdong province, seeking the improvement of energy efficiency in Guangdong by 16% through the construction of an efficiency power plant that will generate 107 MW. Implementation of this plant will avoid consumption of 175,813 tons/year of coal, resulting in emission reductions of 415,560 tons/year of CO2.	35,0	100%	35,0	09-Jun-08
Water and other Municipal Infrastructure and Services	UBZ	2466	Surkhandarya Water Supply and Sanitation	The Project will support water supply and sanitation sector development in Uzbekistan. With a limited existing water delivery and sewerage system, clean energy benefits arise from the implementation of an efficient system that conserves energy while delivering an adequate supply.	30,0	25%	7,5	03-Nov-08
Supply Side Energy Efficiency								
Multisector	PRC	2407	Gansu Baiyin Urban Development Project	The Project will provide support to facilitate economic transformation in Baiyin by strengthening urban services and infrastructure, and promoting capacity development. The Project will directly benefit more than 475,000 urban residents in the project areas through construction of urban infrastructure for economic transformation, improved urban roads, and expanded and enhanced district heating supply.	80,0	15%	12,2	23-Jan-08
Energy	AZE	2437	Power Transmission Enhancement Project	The project components comprise construction of a double-circuit 220 kV transmission line of 280 kilometers (km); construction of Agdash substation with installation of two 125 megavolt-ampere (MVA) transformers and associated 110 kV transmission lines near Agdash substations. Clean energy benefits arise from the repair/ rehabilitation of aged transmission lines and equipment, much of which is well beyond its useful life. The more efficient delivery of power means a reduced need for generation, which lowers overall greenhouse gas emissions.	160	7%	11,2	10-Sep-08
Energy	PAK	2438/9	Power Distribution Enhancement Investment Program	This Investment Program will improve power distribution infrastructure through system rehabilitation, augmentation, and expansion and relieve the power system from distribution bottlenecks and constraints. Overall, the entire system will be made more efficient which reduces the need for excess power generation, which lowers overall greenhouse gas emissions.	252	17%	42,8	12-Sept. 2008
Sub Total					1 290,40		609,82	

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Sector	Country	Loan No.	Project Name	Description of Project and Clean Energy Benefits	Total Loan Amount (\$million)	% CE	CE Investment (\$million)	Approval Date
PUBLIC PROJECTS								
Large Hydropower								
Energy	PRC	2408	MFF - Gansu Heihe Rural Hydropower Development Investment Project- Project 2	The Investment Program will partially finance the Heihe river cascade hydropower development scheme, a large infrastructure project with seven discrete run-of-river medium hydropower plants. Construction of the scheme, which started in 1996, will develop an aggregated 645.5 megawatts (MW) of hydropower. These plants will contribute to an increase in the use of renewable energy in Gansu province from the current 19% to 23% by 2015.	28,0	100%	28,0	29-Jan-08
Energy	VIE	2429	Song Bung 4 Hydropower Project	The Project consists of the construction of a 156 megawatt hydropower plant in the Vu Gia-Thu Bon river basin in Quang Nam province, central Viet Nam. Aside from the generation benefits, the addition of this renewable energy source will contribute to Viet Nam's targets of sourcing 30% of its needs from renewable sources by 2010.	196,0	100%	196,0	26-Jun-08
Energy	IND	2461	Himachal Pradesh Clean Energy Development Investment Program - Tranche 1	The Program combines physical investments in run-of-river hydroelectric power generation in Himachal Pradesh. This increased hydropower production, as well as improved planning, implementation, management and sector governance will contribute to an increase in the the State's hydroelectric capacity from the 2007 baseline of 413.5 MW to 1,221.5 MW by 2016. This use of hydroelectric power will lead to about 2.3 million emission reductions sold (in the form of carbon credits) per year.	150,0	100%	150,0	27-Oct-08
Energy	BHU	2463/4	Green Power Development	The Green Power Development Project has two components: regional clean power trade, and renewable energy access for the poor. Under the first component, the Dagachhu hydropower development (a 114-megawatt run-of-river type) aims to export power from Bhutan to India through the existing grid to India. This expansion in clean power will see an annual reduction of emission gas equivalent CO2 by 250,000 tons by 2012 and by 500,000 tons in a cross-country basis after 2012 on onward.	80,0	100%	80,0	29-Oct-08
Efficiency in Fossil Fuels								
NONE								
Cleaner Fuels								
NONE								
Public Sector Total					1 744,40		1 063,82	

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Sector	Country	Loan No.	Project Name	Description of Project and Clean Energy Benefits	Total Loan Amount (\$million)	% CE	CE Investment (\$million)	Approval Date
PRIVATE PROJECTS								
Renewable Energy								
Energy	IND	7277 /2417	Gujarat Paguthan Wind Energy Financing Facility (a.k.a. Samana Wind Power Project)	The Samana Wind Power Project involves the construction and operation of 100.8 MW of wind power generation facilities. The Project is physically a part of a larger wind energy farm, and, upon completion, the Samana wind farm as a whole will have 450 wind turbine generators (WTGs) with a combined power generation capacity of 360 MW (0.8 MW per WTG). It will operate in conjunction with the Saundatti Wind Power Project involves the construction and operation of 82.4 MW of wind power generation facilities (103 units of 0.8 MW each). The Project generates about 8 million tons of CO2 savings during the first 20 years of operation and saves about 4.4 million tons of coal imports over 20 years.	45,0	100%	45,0	17-Apr-08
Energy	IND	7277 /2434	CLP Wind Farms Private Limited (Samana Phase 2 Project & Saundatti Project)	(see above)	60,0	100%	60,0	17-Apr-08
Energy	PRC	7285	Inner Mongolia Wind Power Project (Datang Sino-Japan Renewable Power Corp)	The principal component of the Project are wind power generation facilities totaling 49.5 megawatt and the addition of a 63 MVA power transformer at Dong Shan Electric Booster Station. This contributes to country targets for renewable energy to comprise 16% of total power generation by 2020. The Project will generate savings of about 140,000 tons of CO2 annually during the first 25 years of operation.	24,082	100%	24,082	04-Sep-08
Demand Side Energy Efficiency								
NONE								
Supply Side Energy Efficiency								
Energy	PRC	7279	Municipal District Energy Infrastructure Development Project (Dalkia Asia Pte Ltd.)	This Project supports Dalkia's investment plan to fund a series of district energy system infrastructure projects in municipalities across PRC. Clean energy benefits arise from increased energy efficiency due to improved infrastructure. The increased energy efficiency will result in annual energy savings of 35 million tons of coal equivalent by 2018 for municipal district energy systems.	400,0	75%	300,0	02-Jun-08
Other								
Energy	REG	7275	Asian Clean Energy Private Equity Funds	The transactions are equity investments totaling up to \$100 million in five clean energy-focused private equity funds. These are the: Asia Clean Energy Fund (up to \$20 million), China Clean Energy Capital (up to \$20 million), China Environment Fund III (up to \$20 million), GEF South Asia Clean Energy Fund (up to \$20 million), and MAP Clean Energy Fund (up to \$20 million).	100,0	100%	100,0	17-Apr-08
Sub Total					629,08		529,08	

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Sector	Country	Loan No.	Project Name	Description of Project and Clean Energy Benefits	Total Loan Amount (\$million)	% CE	CE Investment (\$million)	Approval Date
PRIVATE PROJECTS								
Large Hydropower								
NONE								
Efficiency in Fossil Fuels								
Energy	IND	7276	Mundra Ultra Mega Power Project (Coastal Gujarat Power Ltd)	The Project is to construct, operate, and maintain a 4,000 MW coal-fired power plant (5 units of 800 MW each) on a build-own-operate basis, incorporating supercritical technology. This new technology will allow the plant to save on 28 million tons of carbon dioxide savings over 10 years of operation.	450,0	20%	90,0	17-Apr-08
Energy	PHI	7273	Masinloc Coal-Fired Power Project (Masinloc Power Partners Co. Ltd.)	The Project involves the acquisition, refurbishment and operation of a 600 MW Coal Fired Thermal Power Plant. The refurbishment will allow the plant to meet global environmental standards. It will reduce its carbon dioxide emissions per unit of electricity generated.	200,0	5%	10,0	15-Jan-08
Cleaner Fuels								
NONE								
Private Sector Total					1 279,08		629,08	
TOTAL (2008)					3 023,48		1 692,90	

In preparing any country program or strategy, financing any project, or by making any designation of, or reference to, a particular territory or geographic area in this document, the Asian Development Bank does not intend to make any judgments as to the legal or other status of any territory or area.