



# **Energy Sector Coordinating Committee Status Report**

**Fifth Ministerial Conference  
on Central Asia Regional Economic Cooperation  
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**Central Asia Regional Economic Cooperation (CAREC)  
Energy Sector Coordinating Committee (ESCC)  
Progress Report (since last ESCC meeting)**

**I. BACKGROUND**

1. At its April 2006 meeting the ESCC agreed on a timetable to develop their Energy Sector Strategic Action Plans comprising Investment Needs, Capacity Building Needs; Outputs; Outcomes, and Monitoring Indicators for the energy sectors of each of the CAREC members.

2. ESCC also endorsed carrying a study to assess the available options for Movement of Primary Energy Commodities from Central Asia” with the suggestion made by PRC that the study should be at a ‘pre-feasibility’ level, identifying the strategic options and policy choices and requirements; and any particular project proposal coming out of this study would then be developed on a bilateral/trilateral basis with the countries involved.

3. The ESCC also agreed that, in view of the complexity of the Clean Development Mechanism (CDM) and the many sectors that provide opportunities for CDM projects, the IFIs should, in the context of their operational visits, make additional presentation to all relevant officials in each of the CAREC members. In this regard, it was agreed that CAREC members could benefit from the experience of PRC, who have the most CDM projects among CAREC members.

**A. Energy Action Plans**

4. In pursuit of the agreements of the ESCC, national energy sector action plans have been received from Afghanistan, Azerbaijan, Kyrgyz Republic, Tajikistan, and Mongolia. Peoples Republic of China (PRC), Kazakhstan and Uzbekistan are yet to submit their respective actions plans.

5. World Bank has prepared a Discussion Note on the Energy Sector Strategic Action Plans.

**B. Central Asia Options for Movement of Primary Energy Commodities Study (OMPECS)**

6. The ESCC and SOM endorsed that the Central Asia Options for Movement of Primary Energy Commodities Study (OMPECS) should be carried out. It was also felt that prior individual consultations on willingness the CAREC countries to participate in such a study would be needed, since the cooperation of relevant agencies and entities within CAREC countries would be needed. Accordingly, consultations have been held with Kazakhstan and PRC.

- Kazakhstan’s Kazmunaigas (the national oil and gas transportation company) has expressed willingness to participate in the study pending clearance from the relevant government ministries. On the other hand, Kazakhstan has indicated that it already pursues regular coal exports to Russia, and neighboring China is self-sufficient in terms of coal. In this context Kazakhstan’s opinion is that there is no need of exploring further options to export coal.

- The National Development and Reform Commission (NDRC) of China has indicated willingness to support and coordinate the involvement of Chinese entities in the study; but have requested ADB and the World Bank to first discuss on their own with the Chinese entities the interest of these entities in the study. For PRC, in view of the diffused responsibilities for production and transportation of primary energy commodities, it would make sense to include as many of the oil and gas companies in the country as possible. Accordingly, ADB and the World Bank have already met with Sinochem Petroleum Exploration and Production Co. Ltd (Sinochem E&P) which has indicated their interest in participating in the study. Therefore, such consultations would continue; and consultations are also planned with other CAREC countries.

### **C. Clean Development Mechanism**

7. The key development that needs reporting is that Tajikistan has not formally announced that it would not ratify the Kyoto Protocol.

8. In the meantime, the IFIs, ADB and World Bank continue to develop CDM programs and projects as summarized below.

- The ADB Carbon Market Initiative (CMI) is currently receiving expressions of interest from potential participants and is continuing to request other interested countries to join the initiative. The Asia Pacific Carbon Fund (APCF) Information Memorandum and draft Fund Regulations were circulated in July 2006 among potential participants for comments, which have now been incorporated. ADB's management has approved the CMI concept to be submitted for the Board consideration upon reaching approximately US\$80 million in commitments.
- The ADB Energy Efficiency Initiative (EEI) is implementing its second Phase until December 2007, which includes the preparation of country-level investment and action plans on energy efficiency, development of the project pipeline for 2008-2010, design and establishment of the Asia-Pacific Fund for Energy Efficiency (APFEE), and identification of immediate energy efficiency investment opportunities.
- The World Bank has recently endorsed an assistance program that envisions more active engagement in countries of Central Asia, which has ratified the Kyoto Protocol and has a portfolio with the World Bank. At present, Uzbekistan and the Kyrgyz Republic are the most likely participants having ratified the Kyoto Protocol. In Uzbekistan, the World Bank is already supporting the development of a waste management project. The assistance program will focus on raising awareness about the Clean Development Mechanism (CDM) among key stakeholders and developing a potential pipeline of CDM projects. A similar program is already underway in Azerbaijan, where a CDM workshop was held last March.

## **II. PROGRESS OF THE CAREC MEMBERS ELECTRICITY REGULATORS FORUM**

9. The Second Annual Meeting of the CAREC Members Electricity Regulators Forum (CMERF) was successfully held in Almaty, Kazakhstan on 11-13 September 2006. It was co hosted by ADB and the Agency for Regulation of Natural Monopolies (ARNM) of Kazakhstan. The three-day event sponsored by ADB and the Public-Private Infrastructure Advisory Facility (PPIAF) brought together a total of 60 participants: (i) regulators from Afghanistan, Azerbaijan,

People's Republic of China, Kazakhstan, Kyrgyz Republic, Mongolia, Tajikistan and Uzbekistan; (ii) international power regulation experts, and (iii) representatives of multilateral institutions.

10. The Meeting adopted a plenary format and the agenda covered the following main topics: (i) tariff design and social safety net; (ii) privatization of distribution company management; (iii) power utility costs; (iv) pricing of ancillary services; and (v) risk sharing in power purchase agreements. The ADB presented and discussed the interim findings of the ongoing studies on these topics. Prominent power regulation experts delivered presentations and led discussions on aligning government and investor expectations, regulatory issues faced by private companies and regulators, and shared the lessons learned from electricity restructuring in transition countries.

11. Each country delegation prepared and made a presentation on the progress of power regulation reforms since the 2005 annual meeting held in Beijing. They stressed the importance of the role that CMERF plays in supporting the region's power regulators and ongoing sector reforms. They also led an open session on the planning of future activities, and shared their views on how CMERF can serve its members' needs more effectively in the coming years.

12. First, the country delegations found the Second Annual Meeting successful and the presentations by the speakers useful and directly related to the regulatory situation in their respective countries. Second, the delegates reemphasized the value that CMERF adds to the process of harmonizing power regulations, encouraging and facilitating regional trade, and developing the capacity of the regulators and the regulatory bodies. Third, the delegates also expressed their satisfaction in the interactions both formal and informal with the resource persons. They were able to clarify and discuss in-person and in-detail the issues of interest. The delegates appreciated the method of seat rotation of resource persons during each session, as it enabled them to get to know the experts and lead discussions into coffee and lunch breaks and side-meetings during the three days.

13. The participants also debated on whether CMERF meetings could adopt a working group format where specific case studies (i.e. regional power regulation benchmarking, wheeling charge methodology, etc.) will be presented and discussed. The country delegations felt that CMERF should explore the possibility of providing training to its members on specific regulatory topics. In addition to the annual meeting, these training programs will add direct value to the capacity of the regulatory bodies themselves.

14. The country delegations reiterated that CMERF was not just an annual gathering, but an effective and functional forum, and that the ongoing studies under CMERF provided direct and practical support to their work. The exchange of ideas during the annual meetings was indeed something that the regulators need and that should be continued, as it fosters active cooperation amongst experts and regulators, and builds professional relationships between the CAREC region's regulatory bodies. In order to ensure effective ownership, the delegates felt that the country hosting the annual meeting should hold the chairmanship of the CMERF Governing Body during that year, and be responsible for the program and guide the work of the CMERF Secretariat.

15. Discussions were also held on the effective dissemination of information amongst CMERF members. The participants were encouraged to utilize the information available on the current CMERF website ([www.adb.org/projects/CMERF](http://www.adb.org/projects/CMERF)). The participants also felt that electronic exchange of information may be an efficient and useful way to work out initiatives in-

between annual meetings. The ADB proposed to publish the study reports and the Meeting proceedings in April 2007.

16. The country delegations supported and accepted the initiative by the Energy Regulatory Authority of Mongolia to host the third annual meeting in Ulaanbaatar, Mongolia. In the CAREC region, Mongolia conceptually has the most independent power regulation structure and body. ERA has been in operation for 5 years, and has been instrumental in reducing commercial losses in Mongolia's power system.

17. As the co-host, ARNM showcased the Kazakhstan experience in creating electricity markets and tariff reforms. The Meeting concluded with a presentation by the Almaty Power Consolidated, a Kazakh power company, and a tour of its Kapchegai Hydropower Plant (360MW) located outside Almaty.

18. The CMERF was established in 2005 with assistance from ADB and PPIAF to support regional cooperation and integration in the energy sector under the CAREC Program. It aims to develop the capacity of its members to provide improved regulation and regulatory support of power industry reforms. This will help promote more efficient production and use of energy domestically, and will be crucial for supporting the development of electricity trade in the CAREC region. Improved regulation will attract more private investment to the power sectors of the region.

**CAREC Member Country  
Projects and Studies Supported by IFIs**

**ABBREVIATIONS**

|        |    |  |
|--------|----|--|
| ADB    | –  | Asian Development Bank   |
| CoP    | –  | Conference of Parties of the UN Framework on Climate Change  |
| DANIDA | –  | Danish International Development Agency  |
| DFID   | –  | Department for International Development (United Kingdom)  |
| DGIS   | –  | Directorate General for International Cooperation (the Netherlands)  |
| EBRD   | –  | European Bank for Reconstruction and Development   |
| EIB    | –  | European Investment Bank   |
| ESMAP  | –  | Energy Sector Management Assistance Program (World Bank)   |
| GEF    | –  | Global Environment Facility  |
| IBRD   | –  | International Bank for Reconstruction and Development (World Bank)   |
| IDA    | –  | International Development Agency (World Bank)  |
| IDB    | –  | Islamic Development Bank   |
| IFC    | –  | International Finance Corporation (World Bank)   |
| IS     | –  | Installment Sale (Mode of financing used by IDB whereby the client purchases a project at a markup from IDB, paying for it over time without interest) |
| JBIC   | –  | Japan Bank for International Cooperation   |
| KFW    | –  | Kreditanstalt für Wiederaufbau (Germany)   |
| NDF    | –  | Nordic Development Fund (Denmark, Finland, Iceland, Norway, and Sweden)  |
| PPIAF  | –  | Public Private Infrastructure Advisory Facility (World Bank)   |
| SECO   | –  | Secretariat für Wirtschaft (Swiss)   |
| PCF    | -  | Prototype Carbon Fund  |
| UNDP   | –  | United Nations Development Program   |
| USAID  | –  | United States Agency for International Development   |
| USTDA  | –  | United States Trade and Development Agency   |
| WB     | –  | World Bank   |
| AKFED  | -- | Agha Khan for Economic Development   |
| ARTF   | -- | Afghanistan Reconstruction Trust Funds   |
| SGP    | -  | Small Grants Program of the Global Environmental Facility  |

## I. Central Asia and Mongolia

**Table IA: Recently Completed<sup>1</sup>**

|   | Agency       | Grant Amount (US\$ M) | Date Completed | Description  |
|---|--------------|-----------------------|----------------|--|
| <b>1. Studies</b>   |              |                       |                |  |
| <b>AFG</b> Pilot Study for Pro-Poor Electric Power PPP Projects   | JBIC         |                       | September 2005 | To examine the applicability of the Public-Private Partnership (PPP) in pro-poor power project models in Pul-i-Khumri and Bamyan.  |
| <b>AFG</b> Power Transmission   | Iran         | 13.4 (Grant)          | Completed      | <ul style="list-style-type: none"> <li>2 x 132 kV, 212 km transmission line connecting Iran to Herat, 65 MVA.</li> </ul>   |
| <b>AFG</b> Power Transmission   | Iran         | 2M (Grant)            | Completed      | <ul style="list-style-type: none"> <li>2 x 20 kV, 120 km transmission line connecting Iran to Herat, 6 MVA.</li> </ul>   |
| <b>AFG</b> Power Transmission   | Iran         |                       | Completed      | 20 kV transmission line from Iran to Zaranj, 33 distribution stations.   |
| <b>AFG</b> Power Generation   | USAID        |                       | Completed      | <ul style="list-style-type: none"> <li>Feasibility Study for 100 MW thermal plant at Sheberghan using indigenous natural gas.</li> </ul>   |
| <b>AFG</b> Power  | WB           |                       | 2004           | Power Sector Master Plan   |
| <b>AFG</b> Oil and Gas Sector Report  | WB/USTDA A   | 1.1                   | 2005           | The study consists of evaluation options for rehabilitating gas-processing facilities, formulating options for improving the local capability of supplying refined petroleum products and evaluating options for gas supply to Kabul for power and non-power purposes. |
| <b>AZE</b> Issues and Options Associated with Energy Sector Reform  | WB           |                       | March 2005     | Issues and optional routes to take to improve operations relating to oil revenue management, the petroleum sector, the gas sector, the power sector, sector regulation, and the environment.   |
| <b>AZE</b> Electricity Sector Social Impact Study   | WB           |                       | Dec 2004       | Report title: "Raising Rates: Short-Term Implications of Residential Electricity Tariff Rebalancing".  |
| <b>AZE</b> Power Sector Study   | JBIC         | 0.1                   | Oct 2004       | Power sector study with weight on technical, reliability, and management issues.   |
| <b>AZE</b> Regulatory Study   | PPIAF/WB     |                       | 2005           | Development of the regulatory framework and institutional capacity in electricity, natural gas, and water.   |
| <b>AZE</b> Energy Sector, prioritization of investment  | USTDA /EBRD  | 0.4                   | 2004           | Overall review of the sector investment requirements; least cost analysis was not permitted due to the limited data made available.  |
| <b>AZE</b> Support to the Ministry of Fuel and Energy in designing the Country Energy Balance and developing the most effective tools to analyze energy networks. | UNDP         | 0.1                   | 2003           | Redesign of the Energy Balance according to the international IEA rules, to allow a more direct and clear analysis of the energy components in the economy and a comparison of the Azeri data to those of other countries.   |
| <b>AZE</b> Natural Gas Sector Strategy  | PPIAF/ESMAP/ |                       | Dec 2002       | Overall review of the downstream (domestic) gas sector and recommended actions to  |

<sup>1</sup> Projects or Technical Assistance for which completion report is available.

|  | Agency         | Grant Amount (US\$ M) | Date Completed      | Description  |
|--|----------------|-----------------------|---------------------|--|
|  | WB             |                       |                     | ensure its future efficient operation.   |
| <b>AZE</b> Electricity and Natural Gas Restructuring and Regulatory Reform   | PPIAF/WB       |                       | May 2001            | Proposals for reforming and restructuring the energy utility sectors.  |
| <b>AZE</b> Country study & national report FCCC Azerbaijan   | UNDP/GEF       | 0.43                  | 2001                | Preparation of the first national communication of the country to the Conference of Parties (CoP) of the UN Framework Convention on Climate Change.  |
| <b>AZE</b> SOCAR Refinery Modernization/Dubendi Port FS  | USTDA          | 0.6                   | 2003                | Examined the feasibility of processing crude oil from neighboring countries at State Oil Company's (SOCAR's) refineries.   |
| <b>KAZ</b> Removing barriers to wind power production in Kazakhstan (preparatory phase)  | UNDP/GEF       | 0,35                  | 2003                | Overview of wind power perspective in Kazakhstan and preparatory of full-scale project for wind power development.   |
| <b>KAZ</b> Gas Utilization Study   | USTDA          | 0,6                   | 2001                | Study weighing the economics of various uses of stranded gas in Kazakhstan.  |
| <b>KAZ</b> Gas Storage Reconstruction Feasibility Study.   | USTDA          | 0.6                   | 2005                | Poltoratskoye and Akyrtope Underground Gas Storage Reconstruction Feasibility Study.   |
| <b>KYR</b> Enabling the Kyrgyz Republic to Prepare its First National Communication in Response to its Commitments to the UNFCCC | UNDP/GEF       | 0.43                  | 2001/4 (two phases) | Preparation of the First National Communication of the country to the Conference of Parties (CoP) of the UN Framework Convention on Climate Change.  |
| <b>KYR</b> Consolidated Structural Adjustment Credit   | IDA/Swiss/DGIS | 35                    | 2004                | Supports the Government's effort to strengthen its fiscal position and improve the business environment through utility, tax and de-regulation reforms. For the energy sector, it supports the unbundling of the giant power company into four power distribution companies, and separation of generation and transmission companies and increase in tariffs closer to cost recovery levels. |
| <b>KYR</b> Energy efficiency measures in Kyrgyz Republic: a cost-benefit assessment  | Swiss          | 0.05                  | 2005                | Provides the basis for a later decision by SECO to conduct energy-efficiency measures on the demand side.  |
| <b>TAJ</b> Development of an Energy Conservation Program   | ADB            | 0.12                  | 2003                | Investigation of causes of energy waste, and development of an action plan for promoting energy conservation by users.   |
| <b>TAJ</b> Improving Barki Tajik's Billing and Collection Systems  | ADB            | 0.5                   | 2004                | Seek ways to improve bill transparency and collection.   |
| <b>TAJ</b> Improvement of the Accounting & Financial Management of Barki Tajik Subsidiaries                                      | ADB            | 0.4                   | 2005                | Provide hands-on assistance for improving procedures in line with International Financial Reporting Standards. Improve Computer and Accounting skills.   |
| <b>TAJ</b> Utility Reform Study  | IBRD           | Own Funds             | 2005                | Formulation of medium term reforms required in the domestic utility services – electricity, gas and water  |
| <b>TAJ</b> Hydropower Development Strategy   | ADB            | 0.6                   | 2006                | Identify export markets, design least cost infrastructure development strategy, and coordinate donor assistance towards optimal  |



|   | Agency                   | Grant Amount (US\$ M) | Date Completed | Description   |
|---|--------------------------|-----------------------|----------------|---|
|   |                          |                       |                | hydropower development.   |
| <b>TAJ</b> Enabling the Republic of Tajikistan to Prepare its First National Communication in Response to its Commitments to the UNFCCC | UNDP/GEF                 | 0.43                  | 2003           | Preparation of the First National Communication of the country to the Conference of Parties (CoP) of the UN Framework Convention on Climate Change.   |
| <b>TAJ</b> Community Based Micro-Hydropower Development in Remote Rural Areas   | ADB                      | 0.8                   | 2004           | Studies and pilot projects for establishing community management and development of small-scale hydropower facilities for off-grid areas.   |
| <b>TAJ</b> Rehabilitation of the Kairakkum and Varzob Cascade Hydropower Plants Feasibility Study                                       | USTDA                    | 0.4                   | Ongoing        | Feasibility study on the rehabilitation of the Kairakkum and Varzob Cascade Hydropower Plants.  |
| <b>UZB</b> Energy Needs Assessment  | ADB                      | 0.6                   | 2005           | Review govt. energy saving plan for power, gas and district heating sectors and produce a comprehensive energy saving plan for the period until 2010.   |
| <b>UZB</b> Off-grid Renewable Energy Development  | ADB financed by Denmark. | 0.35                  | 2005           | Assessment of potential and development of pilot schemes for off-grid generation using renewables in villages and small towns.  |
| <b>UZB</b> Energy Sector Study  | JBIC                     | 0.1                   | 2004           | Overall review of power sector.   |
| <b>UZB</b> Climate Change Enabling Activity   | UNDP/GEF                 | 0.43                  | 2002           | Preparation the first national communication of Uzbekistan to the CoP, building in-country capacity to fulfill its commitments to the Convention on a continual basis and building capacity to establish a basis for additional obligations.  |
| <b>UZB</b> Removing Barriers to Energy Efficiency in Municipal Heat and Hot Water Supply  | UNDP/GEF                 | 0.2                   | 2003           | To prioritize technologies and measures that have potential to improve efficiency and to reduce the greenhouse gas emissions of the municipal heat and hot water supply. Conduct detailed technical, economic, social and environmental feasibility study of the selected technologies, and identify main barriers, energy efficiency measures and elaborate a strategy and a plan for their removal. |
| <b>UZB</b> Review Studies to promote clean energy development in Uzbekistan   | UNDP Nordic Trust Fund   | 0.91                  | 2006           | Project provided information regarding existing barriers and made recommendations to establish adequate conditions and incentives for the development of the renewable energy sector in Uzbekistan.   |
| <b>UZB</b> Energy Sector Study  | IBRD                     | Own Funds             | 2004           | Design of medium term reforms required in the domestic utility services – electricity, gas and water.   |
| <b>UZB</b> Construction of Tashkent Underground Gas Storage   | IDB                      | 0.42                  | 2005           | TA will prepare technical, environmental and economic studies on the use of gas in cold seasons by Tashkent Municipality. Study is related to the construction of an underground gas storage facility.  |
| <b>UZB</b> PDF-A Promotion of Renewable Energy  | UNDP/GEF                 | 0.05                  | 2005           | This project aims to prepare a Project Brief for a Medium-Size GEF project to elaborate   |

|  | Agency                         | Grant Amount (US\$ M)            | Date Completed | Description  |
|--|--------------------------------|----------------------------------|----------------|--|
| Sector in Uzbekistan   |                                |                                  |                | a National Renewable Energy Strategy for Uzbekistan.   |
| <b>UZB</b> Syrdarya Power Plant Feasibility Study  | USTDA                          | 0.2                              | 2005           | Feasibility study on the modernization of Units 5 & 6 of the Syrdarya Power Plant.   |
| <b>Regional</b> Transmission Modernization Project (UZB/TAJ)   | ADB/EBRD                       | 50                               | 2004           | Proposed joint ADB-EBRD project to enhance regional energy systems to promote cross border electricity trade and cooperation between UZB and TAJ. The loan has been cancelled in July 2005.  |
| <b>Regional</b> Gas Transmission Improvement Project in CARs   | ADB                            | 0.8                              | 2006           | Provide necessary technical and institutional support to continue the enhancement of regional gas trade.   |
| <b>Regional:</b> Central Asia Water Energy Nexus – Regional Cooperation in the Syr Darya Basin               | IBRD                           | Own Funds                        | 2003           | Provides analysis of the existing water sharing agreement on the Syr Darya and recommends modifications and a new methodology to make the arrangement transparent, objective and functional.   |
| <b>Regional:</b> Assistance in Revising the 1998 Agreement on the Use of Water and Energy of Syr Darya River | ADB/USAID                      | 0.1                              | 2004           | Advisory service to revise the 1998 Agreement (in cooperation with USAID).   |
| <b>Regional</b> Study on Intra-Regional Cooperation on Water and Power for Efficient Resource Management     | JBIC                           | 0.2                              | 2005           | Overall review of cooperation among Amu- and Syr-Darya basin countries in electricity and water sectors, and proposals for improved cooperation.   |
| <b>Regional Electricity Exports Potential Study</b>  | WB                             |                                  | 2005           | Analysis of the electricity export potential of the Central Asian countries within the region and beyond.  |
| <b>Regional</b> Joint Economic Research Program between the World Bank and the Kazakh Government.            | WB/ Govt. of Kazakhstan        | Own Funds<br>Co-financed by GoKZ | 2005           | Design of a Framework Agreement and Structure of the Water Energy Consortium, review of relevant legislation in the countries involved and international experience in sharing benefits from joint river basin management.   |
| <b>Regional:</b> Improved Management of Critical Natural Resources   | USAID                          | 2.78                             | 2004           | Regional study to provide technological and structural solutions to the system changes needed to meet the water and energy needs of the region.  |
| <b>Regional:</b> TAR: 34206  | ADB co-financed by Netherlands | 4.2                              | 2000-2005      | Promotion of renewable energy, energy efficiency, and greenhouse gas abatement.  |
| <b>Regional:</b> Export Potential of Electricity from CARs   | IBRD                           | Own Funds                        | 2005           | The study analyzes the possibilities to significantly enhance electricity trade, both within the Central Asian Republics (CARs) and with external electricity markets. The study outlines trading and investment opportunities in this regard and highlights relevant risks. |
| <b>Regional</b> Power Transmission Modernization in CARs (Phase II)  | ADB                            | 0.8                              | 2005           | Second phase study on enhancing power trade among the CARs, and establishing an integrated Central Asia regional wholesale power market.   |
| <b>2. Projects</b>   |                                |                                  |                |  |
| <b>AFG</b> Power   | KfW                            | EUR 8.7                          | Completed      | Rehabilitation of 110 kV transmission line   |

|  | Agency      | Grant Amount (US\$ M)                 | Date Completed             | Description   |
|--|-------------|---------------------------------------|----------------------------|---|
| Transmission   |             | million, with cofinancing from the EU |                            | from Sarobi to Breshna Kot substation and rehabilitation of s/s, street lighting Kabul.   |
| <b>AFG – Power Distribution</b>  | KfW         | EUR 2.6 million                       | Completed                  | Rehabilitation of 15 kV and low voltage network (lines and transformers) in Kabul, special vehicles and tools.  |
| <b>AFG Power Generation</b>  | WB          | 5.5                                   | 2003                       | Re-commissioning of the 45 MW Kabul NW Thermal Power plant + fuel for first winter  |
| <b>AZE Mingechaur Power Project</b>  | IDB/ EBRD   | 34.17 (part IS)                       | 2003                       | Replacement of four generators, reconstruction of a 120 km (330 kV) line, and installation of a substation at Agcabedi with 110 kV connection to Barda region.                              |
| <b>AZE Shimal Gas Combined Cycle Power Plant Project I</b>                               | JBIC        | 181                                   | 2003                       | Building of a 400 MW gas combined-cycle power plant and gas pipeline to feed it.  |
| <b>AZE Socar Restructuring</b>   | EBRD/ USTDA | 0.7                                   | Phase I complete June 2006 | Technical Assistance to the State Oil Company of Azerbaijan on restructuring and rationalization of operations.   |
| <b>AZE Derbend-Yashma Transmission Line</b>  | IDB         | 20 (IS)                               | 2005                       | Installation of a 330 kV transmission line.   |
| <b>AZE AzDRES TPP</b>  | EBRD        | 150                                   | 2005                       | Rehabilitation of AzDRES TPP (2400 MW) heavy fuel oil and gas fired plant. Financing source may change.   |
| <b>KAZ Removing Barriers to Energy Efficiency in Municipal Heat and Hot Water Supply</b> | NDP/ GEF    | 0,24                                  | 2005                       | Overview of heating sector of Kazakhstan and preparation of a full-scale project for energy efficiency improvement in the heating sector.   |
| <b>KAZ Karaganda Power project</b>   | BRD         | 22.7                                  | 2002                       | The proceeds of the corporate loan were used to finance deferred maintenance and upgrade for the privatized power complex in Karaganda, the country's second largest city.                  |
| <b>KAZ Development Credit Authority for Energy Efficiency Projects</b>                   | SAID        | 0.7                                   | 2005                       | Loan guarantees for investments through a commercial bank for energy projects.  |
| <b>KYR Tariff Policy and Utility Reform Project</b>                                      | DFID        | 2.8                                   | 2004                       | To advise on an energy tariff policy that ensures long-term financial viability and is consistent with the Kyrgyz Government's social, environmental and commercial objectives.             |
| <b>KYR Oreimi Transformers And Substations Manufacturing Facility Project</b>            | IDB         | 8 (IS)                                | Completed                  | To produce electric distribution transformers and substations to enable the Kyrgyz Republic use more effectively its basic asset of locally available cheap source of hydro-electric power. |
| <b>KYR Energy Loss Reduction Program</b>   | USAID       | 0.3                                   | 2005                       | Installation of equipment and associated TA needed to reduce energy losses.   |
| <b>KYR Alai-Batken transmission line</b>   | IDB         | 10.08                                 | end of 2004                | Construction of a double circuit 220 kV transmission line from Alai to Batken.  |
| <b>MON Promoting Energy Efficiency in Industry</b>                                       | DGIS        | 2.5                                   | 1/10/2000 – 1/10/2005      | Pilot project to set up Energy saving companies to stimulate energy efficiency measures, in co-operation with the Mongolian Chamber of Commerce.  |
| <b>MON: Rehabilitation Choibalsan Power Plant</b>  | KfW         | 13.3                                  | 2003                       | Rehabilitation of boilers, one turbine and the feed water and live steam piping system.   |
| <b>MON Ulaanbaatar Heat Efficiency</b>   | ADB         | 41.6                                  | 2005.                      | Rehabilitation and modernization of district heating network and steam system.  |

|  | Agency   | Grant Amount (US\$ M) | Date Completed | Description   |
|--|----------|-----------------------|----------------|---|
| <b>UZB:</b> Clean Energy for Rural Communities in Karakalpakstan                         | UNDP     | 0.09 <sup>2</sup>     | 2003           | Installation of photo-voltaic systems (solar panels) to generate electricity for water-pumping and household purposes in remote isolated rural settlements of Karakalpakstan without connection to the National Electric Grid.  |
| <b>UZB</b> Technology Transfer for Local Production of Solar (water pre-heating) panels  | UNDP     | 0.28 <sup>3</sup>     | 2005           | Technology for production of solar panels for pre-heating water is transferred to 2 local producers. 200 sq.m of solar panels are expected to be installed at one of the utility boiler station (Vodnik) in Tashkent municipality.  |
| <b>UZB</b> Clean Energy for Rural Communities in Karakalpakstan – Phase II               | UNDP     | 0.09                  | 2005           | The project is a continuation of the Phase 1 and plans to achieve sustainability for future procurement and maintenance of solar panels by means of local population and improve the capacity of local authorities/population in utilization of renewable energy for the needs of remote settlements. |
| <b>UZB</b> Removing Barriers to Energy Efficiency in Municipal Heat and Hot Water Supply | UNDP/GEF | tbd                   | 2005           | The project aims to address existing issues to improve energy efficiency of Tashkent municipality heat and hot water supply and distribution system through development of a set of interventions and piloting it at two Tashkent district utility stations.  |

Table I.B: On-going<sup>4</sup>

|                               | Agency | Grant Amount (US\$ M) | Date Completed                                | Description   |
|-------------------------------|--------|-----------------------|---|---|
| <b>1. Studies</b>             |        |                       |   |   |
| <b>AFG</b>                    | JBIC   |                       | Ongoing                                       | MOU with the Ministry of Energy and Water and the Ministry of Rural Rehabilitation and Development to collect information and make recommendations for implementing pro-poor rural energy access approaches.  |
| <b>AFG</b> - Power Generation | ARTF   |                       | Ongoing                                       | Feasibility study for 280 MW Baghdara Hydropower Project on Panshir River.  |
| <b>AFG</b> - Power Generation | USAID  |                       | Ongoing                                       | <ul style="list-style-type: none"> <li>Hydraulic studies in Helmand reservoir, completed with Corps of Engineers Hydraulic Engineering Center in California</li> <li>Preliminary design of service and auxiliary spillways for Kajakai Reservoir;</li> <li>Feasibility study for 50 MW Kajakai II powerhouse at Kajakai Dam.</li> </ul> |
| <b>AFG</b> Power Transmission | WB     | 5.5                   | Ongoing, Expected completion date is end 2006 | <ul style="list-style-type: none"> <li>Rehabilitation of 110 kV line from Naghlu to Kabul.</li> </ul>   |

<sup>2</sup> The funds for the project implementation were provided in form of a grant

<sup>3</sup> The project is implemented in cooperation and financial assistance from DANIDA.

<sup>4</sup> Projects or Technical Assistance which have been approved by the IFI.

|  | Agency                          | Grant Amount (US\$ M) | Date Completed           | Description  |
|--|---------------------------------|-----------------------|--------------------------|--|
| <b>AFG</b> Hydrocarbon Resource Survey   | USTDA/USGS                      | 1.9                   | Ongoing - July 2006      | Stage I & II of Survey of hydrocarbon resources in Afghanistan using available data.   |
| <b>AZE</b>   | UNDP/GEF                        | 0.405                 | Starting soon (mid-2006) | Preparation of the Second National Communication (SNC) of Azerbaijan under the United Nations Framework Convention for Climate Change (UNFCCC)   |
| <b>KAZ</b> Second National Communication to UNFCCC   | UNDP/GEF                        | 0.4                   | Ongoing                  | Preparation of the Second National Communication (SNC) of the Republic of Kazakhstan under the United Nations Framework Convention for Climate Change (UNFCCC)..   |
| <b>KAZ</b> Network Infrastructure Regulatory Development   | EBRD                            | 1.0                   | Ongoing                  | Review and improvement of existing tariff methodologies incl. power sector against international practice. Implementation of revised methodologies   |
| <b>KYR</b> Improvement Of Production Capacity Of Oremi Transformers And Substations Manufacturing Facility Project | IDB                             | 0.262                 | On-going                 | A study to enhance and improve the product quality of the OREMI project through quality development and international certification of products. This will open new markets for Oremi products in the neighboring countries. |
| <b>KYR</b> Southern Kyrgyzstan Transmission Upgrade Feasibility Study  | USTDA                           | 0.2                   | Ongoing-2007             | Feasibility study on the decongestion of the 220 kV transmission network in southwest Kyrgyzstan.  |
| <b>KYR</b> Power and District Heating Rehabilitation   | IDA /ADB/ DANIDA/N DF/ SECO     | 62.7                  | On-going                 | Rehabilitation of Bishkek heat generation and distribution system, improvement of electricity transmission lines and metering.   |
| <b>KYR</b> Second National Communication to UNFCCC   | UNDP/GEF                        | 0.4                   | On-going                 | Preparation of the Second National Communication (SNC) of the Republic of Kyrgyzstan under the United Nations Framework Convention for Climate Change (UNFCCC).  |
| <b>MON</b> Renewable Energy Development in Small Towns and Rural Areas   | ADB financed by Denmark         | 0.4                   | On-going                 | Assess possibilities and develop strategy for providing off-grid renewable energy to isolated areas.   |
| <b>MON</b> Energy Sector Market Structure Review and Tariff Design   | PPIAF                           | .15                   | On-going                 | Review current market structure and propose a new tariff system.   |
| <b>MON</b> Private sector participation in the power sector  | EBRD Mongolia co-operation fund | 0.5                   | 2003-2006                | To assist reforms in the power sector of Mongolia by providing the State Property Committee of Mongolia with an advisor to define and implement a strategy for private sector participation in the power sector.             |
| <b>MON</b> Social Impact of Energy Sector Reforms  | WB/ESMAP                        | 0.1                   | On-going                 | Assess the distributional impact of sector reforms and proposed mitigation mechanisms.   |
| <b>MON</b> Infrastructure Strategy   | WB                              | 0.2                   | On-going                 | Assess Infrastructure requirements and delivery mechanism to sustain Mongolia's Economic Growth and Poverty reduction plans.   |
| <b>MON</b> Energy Efficiency Program   | WB/ESMAP/U                      | 0.1                   | On-going                 | Assess priority energy efficiency market and use of GEF and CDM mechanisms.  |

|   | Agency   | Grant Amount (US\$ M) | Date Completed                       | Description   |
|---|----------|-----------------------|--------------------------------------|---|
|   | SAID     |                       |                                      |   |
| <b>TAJ:</b> Community Based micro hydropower supply in remote rural areas   | ADB/PRF  | 0.8                   | Ongoing 2007                         | Construction of two micro-hydropower schemes in Rasht and Novobad districts.  |
| <b>TAJ</b> Introducing International Accounting Standards at Baki Tajik   | ADB      | 0.5                   | Ongoing                              | Introduction of modern accounting standards, training, and computerization of accounting.   |
| <b>TAJ</b> Reconstruction of 220/500 kV switching station at Nurek Hydropower Plant   | KfW      | 1.1                   | Under tender                         | Feasibility study on various options and technical/economic/ecological optimization for reconstruction of the 200/500 kV switching station and 500 kV evacuation line of Nurek hydropower station (in cooperation with ADB and Islamic Development Bank).   |
| <b>TAJ</b> Development of Local Rural Renewable Energy Sources for Productive Use   | UNDP/GEF | 1                     | Beginning planned for mid-2006       | The goal of the project is to improve the living conditions of the rural population by promoting the environmentally and financially sustainable use of local renewable energy resources that provide opportunities for income generation and essential social services.  |
| <b>TAJ</b> Second National Communication to UNFCCC  | UNDP/GEF | 0.405                 | On-going                             | Preparation of the Second National Communication (SNC) of Tajikistan under the United Nations Framework Convention for Climate Change (UNFCCC).   |
| <b>UZB</b> Small-scale Hydropower Development   | JBIC     | 0.5                   | On-going                             | Study to develop small-scale hydropower potential utilizing the existing irrigation facilities. Basic design will be drawn for selected project locations.  |
| <b>Regional</b> Water Energy Dialogue   | IBRD     | Own Funds             |                                      | Advisory services and facilitation of energy dialogue among the CA countries .  |
| <b>Regional</b> Feasibility Study on Interconnection of ECO (Economic Cooperation Organization) Countries Power System            | IDB      | 0.406                 | On-going                             | Study of the feasibility of interconnecting the existing power networks of ten ECO countries, in order to promote trade of electrical energy between ECO member countries and promote technical cooperation among the IDB member countries for the mutual benefit and development.  |
| <b>2. Projects</b>  |          |                       |                                      |   |
| <b>AFG</b> Loan 1997-AFG(SF): Emergency Infrastructure Rehabilitation and Reconstruction Project - Power Infrastructure Component | ADB      | 41                    | Ongoing Expected completion in 2007. | Construction of double circuit 220 kV line from Hairatan to Naibabad to Mazar and from Naibabad to Pul-e-Khumru, plus construction of Naibabad switching station.   |
| <b>AFG</b> Loan 2165-AFG(SF)/Grant 0004-AFG: Power Transmission and Distribution Project  | ADB      | 50                    | Ongoing. Expected completion in 2008 | (i) <u>Northern Area</u> : 20 km 110 kV transmission lines from Shekanbandar to Imam Sahib; substation at Imam Sahib, Sarepul, Taluqan, and Shekanbandar (switching station); distribution network in Khan Abad, Imam Sahib and Taluqan; electrification kits<br>(ii) <u>Central and Eastern Area</u> : 75 km single circuit 110 kV from Naghlu to Jalalabad, and 17 km double circuit 110 km from Mehtarlam to Jalalabad; substations at Jalalabad, Mehtarlam, |

|  | Agency    | Grant Amount (US\$ M)  | Date Completed                                    | Description   |
|--|-----------|--|---|---|
|  |           |  |   | Qarghayi and Surobi; distribution networks in Jalalabad and Mehtarlam; electrification kits.  |
| <b>AFG</b> Power Generation                                    |           | Eur 17.5M (KfW)<br>\$ 4 M (ARTF)                                       | Ongoing, Expected completion date is Nov 2007     | <ul style="list-style-type: none"> <li>Rehabilitation of Mahipar HPP, 2x22 MW and Sarobi, 2x11 MW.</li> </ul>   |
| <b>AFG</b> – Power Transmission Lines                          | KfW       | EUR 17 million   | Ongoing. Expected completion date is Oct. 2007    | Rehabilitation and upgrade of substations in Mazar and Pul-e-Khumri as co-financing to the ADB transmission project from Heiratan to Pul-e-Khumri.  |
| <b>AFG</b> Power Generation                                    | ARTF/ KfW | 7.4  | Ongoing   | <ul style="list-style-type: none"> <li>Rehabilitation of Mahipar Hydropower station, 2 x 22 M.W</li> <li></li> </ul>  |
| <b>AFG</b> Power Generation                                    | ARTF/WB   | 20   | Ongoing. Expected completion in 2010              | <ul style="list-style-type: none"> <li>Rehabilitation of Naghlu Hydropower station, 4 x 25 MW.</li> </ul>   |
| <b>AFG</b> Power Generation                                    | India     | 80 (Grant)   | Ongoing. Expected completion date is 2009         | <ul style="list-style-type: none"> <li>Rehabilitation of Salma Hydro – Hari Rud River, 42 MW,</li> </ul>  |
| <b>AFG</b> – Power Transmission                                | India     | 100 (Grant)  | Ongoing. Expected completion date is October 2007 | Double circuit 220 kV transmission line from Pul-e-Khumri to Kabul, plus new 220 kV substation in Chimtallah.   |
| <b>AFG</b> Power Generation                                    | USAID     | 80 (a year)  | Ongoing, but about to be transitioned to GOA      | <ul style="list-style-type: none"> <li>Provision of fuel, spare parts and technical assistance to operate the Kabul NW Power Plant.</li> </ul>  |
| <b>AFG</b> Power Generation                                    | USAID     | about \$20 million in fuel plus the purchase of the units in Kandahar. | Ongoing, but about to be transitioned to GOA      | <ul style="list-style-type: none"> <li>Operation and maintenance of diesel gen sets and fuel in Kandahar, Lashkargah, and Qalat.</li> </ul>   |
| <b>AFG</b> Power Generation                                    | USAID     |  | Ongoing; Completion date expected July 2007       | Rehabilitation of Units 1 and 3 (2 x 16.5 MW) + installation of new Unit 2 (18.5 MW) at Kajakai Hydropower plant in Helmand.  |
| <b>AFG</b> Power Transmission                                  | WB        | 5.5  | Ongoing,, Expected completion date is end 2006    | <ul style="list-style-type: none"> <li>Rehabilitation of 110 kV line from Naghlu to Kabul.</li> </ul>   |
| <b>AZE</b> Khachmaz Electric Sub-station and Transmission Line | IDB       | 13.508 (IS)  | Recently approved. On-going                       | The objective of the project is to provide quality and reliable power supply to the northeastern region of Azerbaijan. The project scope includes the expansion of existing substation at Khachmaz to the higher (330 KV) voltage level, a 330 KV spur to connect the substation with the existing 330 KV transmission line, and a new 24 km, |

|   | Agency                    | Grant Amount (US\$ M)         | Date Completed                       | Description  |
|---|---------------------------|-------------------------------|--------------------------------------|--|
|   |                           |                               |                                      | 110 KV transmission line to deliver the electricity to the load center in the region.  |
| <b>AZE</b> Capacity Building for State Oil Fund                                 | USTDA                     | 1.1                           | Phase I complete June 2006           | Technical assistance to assist the State Oil Fund of Azerbaijan in developing its human resources and institutional capacity to better manage these revenues. The first phase of the assistance focuses on reviewing and refining current asset and risk management guidelines and policies.   |
| <b>AZE</b> Shimal Gas Combined Cycle Power Plant Project (unit 2)               | JBIC                      | 250                           | On-going                             | Construction of a 400 MW gas combined-cycle power plant to replace the existing unit.  |
| <b>AZE</b> Power Transmission Project   | IBRD                      | 48                            | Signed 2005, ongoing                 | Supply and installation of an energy management system ("SCADA") for the power transmission system, and transmission system rehabilitation.  |
| <b>KAZ</b> Electricity Transmission Rehabilitation                              | IBRD/<br>EBRD             | 140<br>45                     | On-going                             | Restructuring of KEGOC into financially viable grid company; refurbishment of transmission substation, modernization of dispatch control systems and development of competition through spot market and equal access to transmission network.  |
| <b>KAZ</b> KEGOC North South Power Transmission Project                         | EBRD Syndicate d loan     | 60                            | Ongoing                              | The project finances the 1 <sup>st</sup> section construction of the new North-South 500kv electricity transmission line to address energy and peak supply deficit in southern Kazakhstan.   |
| <b>KAZ</b> KEGOC North South Ekibastuz-YukGRES Power Transmission Project       | EBRD Syndicate d loan     | 87.8                          | Ongoing                              | The project finances the 2 <sup>nd</sup> and 3 <sup>rd</sup> sections of the new North-South 500kV electricity transmission line.  |
| <b>KAZ</b> KEGOC North South Power Transmission Project – 2 <sup>nd</sup> phase | IBRD                      | 100                           | Approved by WB Board on Oct.27, 2005 | Construction of a new 475 km, 500 kV single circuit overhead electricity transmission line from substation Ekibastuz (1,150/500 kV) to substation Agadyr (500 kV), including a fiber optic communication line.   |
| <b>KAZ</b> Uzen Oil Field Rehabilitation Project                                | IBRD                      | 109                           | On-going                             | The project consists of the following components: 1) physical investments including subsurface rehabilitation (provision of equipment, spare parts and chemicals), surface facilities rehabilitation and environmental protection and remediation; 2) physical investment implementation support comprising well testing and logging services, contract work over services and consulting services; and 3) organizational development support involving the strengthening of Uzenmunaigas management through improvements in its financial and operating information systems and the improvement of its financial management and accounting practices and systems. |
| <b>KAZ</b>  | EBRD                      | 87.8                          | Loan signed                          | Construction of the third phase of the North South Transmission line.  |
| <b>KAZ</b> Kazakhstan- wind power market development initiative                 | UNDP/<br>GEF/<br>Kaz Govt | 7.27 (of which 2.55 in grant) | On-going                             | The project will facilitate the construction of a pilot 5 MW wind farm in South of Kazakhstan and support the national wind  |



|   | Agency                | Grant Amount (US\$ M)       | Date Completed               | Description   |
|---|-----------------------|-----------------------------|------------------------------|---|
|   |                       |                             |                              | power program elaboration.  |
| <b>KYR</b> Naryn III Electricity Losses Reduction Project / Power and District Heating Rehabilitation   | IDA/ KfW/ Swiss       | 20.9, of which 9.6 in grant | On-going                     | Technical losses reduction measures in Naryn area; re-metering in pilot areas and billing and accounting systems in four distribution companies.  |
| <b>KYR</b> Consolidated TA  | IDA                   | 5                           | On-going                     | Supports CSAC in the regulatory reform of the gas and power sector, as well as restructuring and privatization.   |
| <b>KYR</b> Advanced measures for the distribution system of Severelektro                                | KfW                   | 12.5                        | On-going till 2008           | Electronic metering of Alamendin district and surrounding areas and selective rehabilitation of the distribution system in advance of a concession (in cooperation with World Bank and Seco financed accounting system).  |
| <b>KYR</b> Aigul-Tash to Karabulak Transmission Line and Sub-stations Project                           | IDB                   | 9.4                         | On-going                     | Single circuit 110 kV overhead transmission line from existing 220/110 kV Aigul Tash Sub-station to Karabulak and Samat Sub-stations, Construction of 110 / 35/10 kV Karabulak sub-station and renovation of existing 110 /35/10 kV Samat sub-station.          |
| <b>KYR</b> Promotion of Micro hydropower generation for sustainable development of mountain communities | UNDP/GE F/SGP         | 0.25                        | Ongoing since September 2005 | Pilot installation of units and assessment of production capacities in the country with further production of an experimental lot.  |
| <b>MON</b> Energy Project   | WB                    | 30                          | On-going                     | Commercialization of electricity distribution business, loss reduction and improved cash collection. Preparation of PSP in distribution business.   |
| <b>MON</b> Ulaanbaatar Thermal Power Plant No. 4 Rehabilitation (2)                                     | JBIC                  | 60                          | On-going                     | Rehabilitation of boilers of the Ulaanbaatar Thermal Power Plant No. 4  |
| <b>TAJ</b> Pamir Project  | IDA / IFC/ AKF/ Swiss | 31.4 of which 5m grant      | On-going                     | Improve supply of electricity in the Gorno Badakshan Oblast through private sector involvement and investments.   |
| <b>TAJ</b> Power Rehabilitation   | ADB/ IDB/ Swiss       | 64 of which 8m grant        | On-going 2008                | Proposed project to rehabilitate and reinforce war damaged power transmission and distribution facilities, and rehabilitate Nurek and Central Hydropower plants.  |
| <b>TAJ</b> Energy Loss Reduction Project  | IDA                   | 18                          | On-going                     | Proposed project has the objective to assist in reducing the commercial losses in the electricity and gas systems, and lay the foundation for the improvement of the financial viability of the electricity and gas utilities in a socially responsible manner. |
| <b>TAJ</b> Financing for Mini Hydropower Plants in Rural Areas  | IDB                   | 9.178                       | On-going                     | The project aims at reducing the overall energy shortage in the rural areas of Tajikistan through building 8 mini hydropower schemes.   |
| <b>TAJ, UZB</b> Social protection under energy sector reforms   | WB/ ESMAP             | 0.35                        | On-going                     | Design of Effective social protection schemes under energy sector reforms in Tajikistan and Uzbekistan.   |
| <b>UZB</b> Syrdarya Power Plant Rehabilitation Project  | EBRD                  | 27.8                        | On-going                     | This sovereign loan was signed in 1997 to finance the rehabilitation and modernization of the Syrdarya Power Plant, improve the generation efficiency and introduce modern turbine design. The project has been fully disbursed.                                |

|   | Agency | Grant Amount (US\$ M)           | Date Completed                              | Description   |
|---|--------|---------------------------------|---|---|
| <b>UZB</b> Syrdarya-Sogdiana Transmission Line  | IDB    | 29.3 (combined lease, loan, IS) | Agreement signed. To be declared effective. | Single circuit 500 kV overhead transmission line from existing 3,000 MW Syrdaraya thermal power station to the under construction 500/200 kV Sogdiana sub-station. Includes facilities for control, communication and necessary interconnection equipment at both ends of transmission line. Transmission line design capacity is 800 MW. |
| <b>UZB</b> Tashkent Thermal Power Plant Modernization Project                           | JBIC   | 226                             | On-going                                    | Construction of a new 370 MW combined cycle gas power plant to replace the existing unit.   |
| <b>UZB</b> Technology Transfer for Local Production of Solar (water pre-heating) panels | UNDP   | 0.28 <sup>5</sup>               | On-going                                    | Technology for production of solar panels for pre-heating water is transferred to 2 local producers. 200 sq. m. of solar panels are expected to be installed at one of the utility boiler station (Vodnik) in Tashkent municipality.  |

Table I.C: Pipeline<sup>6</sup>

|   | Agency          | Grant Amount (US\$ M) | Timing                              | Description   |
|---|-----------------|-----------------------|-------------------------------------|---|
| <b>1. Studies</b>   |                 |                       |                                     |   |
| <b>AZE</b> A for Project on Removing barriers to sustainable and commercial Wind Energy Development in Azerbaijan | UNDP/GEF        | 0.045                 | 2006                                | The outcome of the PDF A will be development of a medium-sized project aiming to reduce emissions of CO <sub>2</sub> through a comprehensive barrier removal process focused on the development of power sector policy and regulatory frameworks supportive of wind energy. |
| <b>AZE</b> Promoting development of small hydropower in Azerbaijan  | UNDP            | 1.5                   | 2006                                | The main outcome of the project will be to achieve a healthy investment environment for small/medium hydropower applications in Azerbaijan. This will be done by revising the legal system, promoting investments and building one or more pilot projects.                  |
| <b>AZE</b> Gas System Restoration in Regional Towns   | ADB/JSF         | 0.5                   | 2006                                | Rehabilitate and replace gas transmission and distribution network in 5 regional centers.   |
| <b>KAZ:</b> Almaty Consolidated Support   | ADB             | 0.1                   | 2006                                | Will provide critically needed infrastructure modernization and rehabilitation for electricity and heat system.   |
| <b>MON:</b> Energy Access   | IDA/GEF         | 10                    | 2007                                | The project will increase energy access among rural consumers.  |
| <b>MON:</b> District Heating Sector Reform  | IDA/GEF /Donors | 40                    | 2008                                | The project will facilitate efficient supply and consumption of heating services in main urban centers and Aimag centers.   |
| <b>2. Projects</b>  |                 |                       |                                     |   |
| <b>AFG</b> Loan and Grant for Hydro Power and Transmission Project  | ADB             | 100                   | Expected approval date January 2007 | <ul style="list-style-type: none"> <li>• Hydropower component: 3 to 4 small hydro schemes, depending on the result of TA 4662-AFG.</li> <li>• Transmission component: <ul style="list-style-type: none"> <li>(i) 220 kV double circuit Pul-e-Khumri</li> </ul> </li> </ul>  |

<sup>5</sup> The project is implemented in cooperation and financial assistance from DANIDA.

<sup>6</sup> Pipeline project and TA dates reflect the anticipated date of approval.

|   | Agency       | Grant Amount (US\$ M) | Timing   | Description   |
|---|--------------|-----------------------|--|---|
|   |              |                       |  | – Kunduz – Shekanbandar, including substation in Baglan and Kunduz<br>Upgrading of Load Dispatch Center in Kabul.   |
| <b>AFG – Power Generation</b>   | KfW          | Eur 3 M               |  | Rehabilitation of Chak-e-Wardak hydropower plant, 3 x 1.1 MW.   |
| <b>AFG – Power Generation</b>   | India        |                       |  | • Microhydel project in Bamiyan with AKDN (Aga Khan Development Network) Solar electricity and rain harvesting for 100 villages.  |
| <b>AFG – Power Generation</b>   | USAID        | 8                     | To be initiated in 2006                                    | Rehabilitation of 11.5 MW Darunta hydropower plant in Jalalabad.  |
| <b>AFG Power Transmission</b>   | USAID        | 35                    |  | • Rehabilitation of the 110 kV transmission line from Kajakai to Kandahar and Lashkar Gah, South East Transportation System (SETS).   |
| <b>AFG Power Transmission</b>   | USAID        | 35                    |  | Construction of new 220 kV transmission line from Kajakai to Kandahar. (SETS).  |
| <b>AFG Power Transmission</b>   | WB           | 65                    | contract award pending; estimated completion date end 2008 | • Rehabilitation of Kabul City Distribution Network   |
| <b>AFG Second Emergency Power Rehabilitation Project</b>  | WB           | 80 (Grant)            | Expected approval in Sep. 2006                             | (i) Upgrade of transmissions line Pul-e-Kumri – Kabul, (ii) 110kV tie from the new Chimalah s/s to the Kabul city grid plus upgrade of existing substations; (iii) Rehabilitation of Mazar City Distribution Network. |
| <b>AZE Gas System Restoration in Regional Towns</b>   | ADB          | 25                    | 2007   | TBD   |
| <b>AZE Renewable Energy Development</b>   | ADB          | 40                    | 2007   | Assist in the rehabilitation of energy infrastructure areas   |
| <b>AZE Wind energy development</b>  | UNDP/GEF     | 3                     | 2008   | Not developed yet   |
| <b>KAZ Almaty Power Consolidated Support</b>  | ADB          | 75                    | 2006   | Will provide critically needed infrastructure modernization and rehabilitation for electricity and heat system for Almaty   |
| <b>KYR Energy Sector Reform Project</b>   | IDA          | 15                    | 2007   | Support implementation of Private Sector Participation in the whole energy distribution sector. Likely cofinancing by other IFIs.   |
| <b>KYR Renewable Energy for rural development</b>   | UNDP/GEF     | 3.5                   | 2006   | Brief development stage   |
| <b>KYR Improving energy conservation of heat and hot water supply in the municipal district heating in Bishkek.</b> | UNDP/GEF     | 0.6                   | 2007   | Under development   |
| <b>KYR Reducing GHG Emissions through Support for Renewable Energy in Kyrgyzstan</b>                                | UNDP/GEF     | 1                     | tbd  | To set up a leasing revolving ecological credit Fund of development and support of wide application of renewable energy.  |
| <b>TAJ Second Pamir private power project</b>   | WB/IFC/AKFED | tbd                   | 2006   | The Project would comprise: (a) construction of a 14 MW hydro capacity near Khorog (the main city and Oblast capital); (b) rehabilitation of small hydro power plants in  |

|   | Agency                       | Grant Amount (US\$ M) | Timing    | Description   |
|---|------------------------------|-----------------------|-----------|---|
|   |                              |                       |           | remote locations; (c) implementing non electricity based space heating solutions (e.g., biomass and locally available coal); (d) rehabilitation of transmission and distribution networks; (e) construction of tie lines across the Tajik-Afghan border to supply villages on the Afghan side with electricity initially in the summer months; and (f) Technical assistance and capacity building.. |
| <b>TAJ:</b> Power Rehab, II   | ADB                          | 23                    | 2006      | Implementation of the availability, reliability and quality of electric supply in Tajikistan: (i) a national component by rehabilitation of Golovnaya power plant and (ii) rehabilitation of transmission and distribution networks in South Tajikistan.  |
| <b>TAJ</b> Renewable energy   | UNDP/ GEF                    | 1.5                   | 2007      | Constructing a small HPP will supply people with hydropower, improve social conditions, and promote the economic development.   |
| <b>TAJ</b> Gas counters   | UNDP/ GEF                    | 2                     | 2007      | To provide a reliable control of gas consumption by the population,   |
| <b>UZB</b> Rural Renewable Energy Development                                     | ADB                          | 20                    | 2006      | Will develop 5 small hydropower plants on existing irrigation infrastructure that will annually generate about 150 GWh of clean and renewable energy in rural areas; will enhance capacity of the project implementing and executing agencies to plan, design, implement and operate similar small hydropower plants in the country.  |
| <b>UZB</b> Energy Transparency and Efficiency Project                             | ADB                          | 25                    | 2006      | Upgrading bulk energy metering and end user metering arrangement for electricity and gas supplies.  |
| <b>UZB</b> Medium Size Project Promotion of Renewable Energy Sector in Uzbekistan | UNDP/ GEF                    | 0.95                  | 2007      | Project will assist the Government of Uzbekistan to elaborate its National Renewable Energy Strategy that will serve as a legal framework and base for the promotion and development of the use of renewable energy in Uzbekistan.  |
| <b>UZB</b> Sustainable Transport and Energy Efficiency                            | UNDP/ GEF                    | 0.05                  | 2007      | Project will prepare a Project Brief for a Medium-Size GEF project aiming to improve efficiency of transport sector.  |
| <b>Regional</b> Power Transmission Modernization in CARs, Phase II                | ADB                          | 70                    | 2006      | Proposed project to improve operation and efficiency of the regional power transmission system and create basis for future wholesale regional power market.   |
| <b>Regional</b> Gas Transmission Improvement Project in CARs, Phase II            | ADB                          | 80                    | 2006      | Proposed project continues the worked started in the Phase I (2004) project. Includes rehabilitation of Nurek switchgear and transmission lines.  |
| <b>Regional</b> Energy Markets Assistance Program (REMAP)                         | USAID/ US Energy Association |                       | June 2006 | The program has three components:<br>1. Central Asia Regional Electricity Market Development. 2. Support for Kazakhstan Electricity Association's Advocacy related to electricity market development. 3. Assistance to electricity sector reform initiatives in Tajikistan and Kyrgyzstan.  |

## II. Peoples Republic of China

**Table II.A: Recently Completed**

|   | Agency                 | Grant Amount (US\$ M) | Timing         | Description   |
|---|------------------------|-----------------------|----------------|---|
| <b>1. Studies</b>   |                        |                       |                |   |
| TA Cluster to PRC for the Promotion of Clean Energy   | ADB                    | 3.5                   | Completed 2004 | Assistance to design a comprehensive program for clean energy policy.   |
| Shaanxi Air Quality Improvement   | ADB                    | 0.7                   | Completed 2003 | Development of a system of tradable air pollution permits, and improvement of the sustainability of environmental protection measures.  |
| Rural Electricity Supply Study  | ADB                    | 0.7                   | Completed 2004 | Recommend rural power sector reforms to improve reliability, increase efficiency, and reduce prices.  |
| Pro-poor Urban Heating Tariff Reforms   | ADB                    | 0.85                  | Completed 2005 | Promote urban heating sector reform by formulating nationwide pro-poor heating tariff guidelines, and establishing an effective heating tariff collection mechanism.                                  |
| Opportunities of the Clean Development Mechanism in the Energy Sector                           | ADB financed by Canada | 0.775                 | Completed 2005 | Provision of guidelines for CDM utilization in PRC, identification of CDM eligible projects.  |
| Establishing the National Electricity Regulatory Commission                                     | ADB                    | 0.5                   | Completed 2005 | Help establish a unified national electricity regulatory board to promote efficiency, encourage investment and ensure gains reach consumers.  |
| Power Pricing Strategy: Tariff Setting and Regulation   | ADB                    | 0.5                   | Completed 2005 | Help the State Electricity Regulatory Commission to develop a power pricing strategy reform plan.   |
| Interregional Power Transmission Network Development Strategy                                   | ADB                    | 0.8                   | 2003           | Evaluate how to optimize power generation through strengthening of regional transmission systems and accompanying human resource development.   |
| Power Sector Restructuring  | ADB                    | 0.8                   | 2004           | Provide PRC with a plan to restructure the power sector, introducing competitive markets.   |
| Sound Safety and Environmental Practices for Offshore Oil and Gas Production                    | ADB                    | 0.58                  | 2004           | Ensure development and adoption of sound practices for use on offshore oil platform, pipelines, oil terminal and gas processing plant.  |
| Strengthening the Accounting and Financial Management Systems in Shanghai Petroleum Corporation | ADB                    | 0.31                  | 2004           | Improve financial reporting and prepare for partial privatization of SHPC.  |
| Wind Resources Concessions for sustainable Development of Renewable energy                      | UNDP/ UNDESA           | 0.175                 | 2003           | Analysis of China's wind energy development, and potential development strategies and policy recommendations.   |
| Modernized Biomass in China : Jilin   | UNF/ UNDP              | 1.279                 | 2004           | A rural village/township CHP demonstration project based on the modernized use of biomass in Jilin Province in order to provide a model for replication in rural areas in other parts of the country. |
| Barrier Removal for Efficient lighting Products and   | UNDP/ GEF              | 8.135                 | 2005           | Addressing identified market barriers to widespread use of energy efficient lighting  |

|  | Agency                    | Grant Amount (US\$ M) | Timing    | Description   |
|--|---------------------------|-----------------------|-----------|---|
| Systems  |                           |                       |           | in China by upgrading of Chinese lighting products, increased consumer awareness of, and comfort with, efficient lighting products and an established vibrant, self-sustaining market in efficient lighting products and services.  |
| Capacity development to manage the reform process of the electric power sector.          | UNDP                      | 0.7                   | 2005      | Separation of power generation from power transmission and distribution, and establishment of power market in pilot provinces in China.   |
| Adoption of Clean Energy Technologies/ Sources to Reduce Air Pollution in Chinese Cities | UNDP/ Govt.               | 3.19                  | 2001-2005 | Assist 18 Chinese cities to improve air quality through development of capacities in clean energy action planning and policy formulation in order to promote the adoption of clean energy sources and clean energy technologies in main energy supply and consumption sectors.                      |
| Sichuan Basin Natural Gas Market and Pricing Study                                       | USTDA/ US Dept. of Energy | 0.2                   | 2005      | A market and pricing study on natural gas in the Sichuan Basin.   |
| Underground Gas Storage Feasibility Study  | USTDA                     | .5                    | 2005      | A feasibility study on an underground gas storage facility in China.  |
| Establishing Long Term Energy Security   | WB                        | 0.1                   | 2004      | A report has been prepared to initiate the discussion with Chinese policy-makers on long term energy security.  |
| Sustainable development of mining in China   | WB-managed TF (Spain)     | 0.04                  | 2004      | Review of government plans to improve geo-science and mining licensing database management, in order to make it transparent and investor friendly, reducing government's discretionary powers.  |
| Biogas-Western Provinces study - TA  | WB-managed Trust Fund     | 0.150                 | 2005      | Assistance to the Western Provinces Office in SDPC to carry out an assessment of the current status of households biogas systems and develop a strategy to better use existing systems and promote biogas use in an economically and environmentally sustainable manner.                            |
| Capacity development to manage the reform process of the electric power sector.          | UNDP                      | 0.7                   | 1999-2004 | Separation of power generation from power transmission and distribution, and establishment of power market in pilot provinces in China.   |
| <b>2. Projects</b>   |                           |                       |           |   |
| Ping Hu Oil and Gas Development  | ADB/ JBIC/ EIB            | 253.76                | 2004      | Construction of off-shore platform, oil and gas pipelines, gas processing plant, and liquefied natural gas storage facility. Development of data management capacity.   |
| Qitaihe Thermal energy and Environmental Improvement                                     | ADB                       | 120.96                | 2003      | Building of 700 MW coal power cogeneration plant with accompanying heating network for 1.8M sq. meters of floor space.  |
| Xian-Xiayang-Tongchuan Environment Improvement   | ADB                       | 156                   | 2003      | Reduced air pollution by (i) replacement of old, small, inefficient boilers and domestic stoves by modern, efficient cogeneration plants and district heating systems fitted with pollution control devices; (ii) substitution of natural gas for coal burning by end users; and (iii) reduction of |

|  | Agency                         | Grant Amount (US\$ M) | Timing         | Description  |
|--|--------------------------------|-----------------------|----------------|--|
|  |                                |                       |                | particulate emissions from a large cement plant.   |
| Anhui Environmental Improvement Project for Industrial Pollution Abatement.                            | ADB                            | 112                   | Completed 2003 | Improve wastewater treatment and replace polluting industrial technologies for the protection of Lake.   |
| Yunnan Dachaoshan power transmission   | ADB                            | 54                    | Completed 2003 | Building of transmission line, expansion of regional transmission network, decommissioning of old coal plants, rural electrification, sector reform.   |
| Shanxi Environment Improvement   | ADB                            | 102                   | Completed 2005 | Pollution reduction through retirement of coal boilers and stoves, introduction of gas heating network and coaled methane utilization.   |
| Beijing Environmental Improvement  | ADB                            | 157                   | Completed 2003 | Replacement of coal plants with gas, improved capture and cleaning of water resources, toxic waste disposal.   |
| Harbin Electric Network Construction Project   | JBIC                           | 56.70                 | 2004           | Set up and augment a 66kV substation facility, transformers, power transmission lines, 10kV power transmission lines, and 380V power distribution facilities in Harbin, in an attempt to improve the reliability of the power supply in the electrical networks.   |
| Capacity Building for the Rapid Commercialization of Renewable Energy in China                         | UNDP/ GEF/ AusAID/ Netherlands | 13.678                | on-going       | Promotion of the widespread adoption of renewable energy technologies in China by removing a range of barriers to increased market penetration of the technologies. Strengthening the capacity of China to shift from the supply-orientated technology deployment to demand-driven, investor- and consumer-friendly approaches.  |
| Building Capacity for the Clean Development Mechanism in China   | UNDP/ UNF/ NORAD/ IMET         | 1.183                 | 2003-2006      | Strengthen government institutions' ability, provide stakeholders the skills and knowledge, develop real CDM projects, and disseminate information on the CDM development both internationally and domestically.   |
| Developing Interconnection of Nation-wide Electricity Network and Improving Energy Efficiency in China | UNDP                           | 22.00                 | 2004-2007      | Policy, regulatory, and technology studies in realizing the strategy of "Western Electricity Sent to the East", "Mutual Supply of North and South", and the development of the national grid interconnection.  |
| Energy Conservation and GHG Emissions Reduction in Chinese TVEs  | UNDP/ GEF                      | 7.99                  | 2001-2006      | Reduce GHG emissions in China from the TVE sector by increasing the utilization of energy efficient technologies and products in the brick, cement, metal casting and coking sectors. Remove key market, policy, technological, and financial barriers to the production, marketing and utilization of energy efficient technologies and products in these industries. |
| Promoting Methane Recovery and Utilization from Mixed Municipal Refuse                                 | UNDP/ GEF                      | 5.285                 | 1997-2006      | Promote widespread adoption of landfill gas recovery and utilization in China based on the technical and organizational experiences from the three pilot landfills in China  |

|  | Agency   | Grant Amount (US\$ M) | Timing                      | Description  |
|--|----------|-----------------------|-----------------------------|--|
| Demonstration for Fuel Cell Bus Commercialization in China | UNDP/GEF | 5.815                 | 2002-2006                   | Catalyze the cost-reduction of fuel-cell buses (FCBs) for public transit application in Beijing and Shanghai, and stimulate technology transfer activities by supporting demonstration of FCBs and their fueling infrastructures   |
| Gansu Small-Sized Hydropower Project                       | JBIC     | 61.12                 | 2005                        | Development of 7 small dams with total hydropower capacity of 112 MW   |
| Inner Mongolia (Tuoketuo) Thermal Power Project            | IBRD     | 400                   | Closing date: Dec. 31, 2005 | (i) construction of the first two coal-fired thermal units in Inner Mongolia.; technical assistance to the Tuoketuo electric power company for accounting and management systems; and a desertification control and dryland management program to improve environmental conditions.<br>(ii) construction of two indoor substations at Xibianmen and Xizhimen, the addition of a third transformer in an underground substation currently under construction, and technical assistance to the North China Power Group Company for implementing accounting and financial management systems. |
| Energy Efficiency Program I                                | KfW      | 53                    | 2005                        | EE-measures in district heating systems.   |

Table II.B. On-going

|   | Agency                | Grant Amount (US\$ M) | Timing        | Description   |
|---|-----------------------|-----------------------|---------------|---|
| <b>1. Studies</b>                                   |                       |                       |               |   |
| Heating supply for urban poor in Liaoning Province  | ADB, financed by DFID | 0.5                   | Ongoing       | Analysis of key issues for improvement of heating supply for urban poor, including reform of the heating sector.  |
| Waste Coal Utilization Study                        | ADB                   | 0.4                   | 2006          | Examine ways to convert waste coal in Shanxi (supplier of 1/3 of PRC's coal) into environmentally friendly fuel.  |
| Renewable Energy for Poverty Reduction              | ADB/Denmark           | 0.6                   | On-going 2006 | Assess least cost options for supplying energy to underserved areas in Zhangye, assess willingness to pay by rural poor, and develop a business plan to optimize gains to rural poor from renewable energy development.   |
| Poverty Reduction in Coal Mine Areas in Shanxi Prov | ADB/PRF               | 0.5                   | Ongoing 2006  | Assist SPG with the development of a model socioeconomic and environmental mitigation program that will focus on retraining redundant miners, developing job creation schemes for redundant miners, and reducing environmental impacts for poor communities following the closure of large numbers of small coal mines in accordance with national and provincial policy. |
| Inner Mongolia Autonomous Region                    | ADB                   | 0.5                   | Ongoing 2006  | Help the Government to design and prepare the environmental improvement project in IRMA.  |
| Alternative Energy Supply for Rural Poor In Remote  | ADB/PRF               | 0.5                   | Ongoing 2006  | Assist GIMAR in formulating a strategy for expansion of alternative energy-based electrification in remote rural areas, including a strategy to improve sustainability of existing  |



|   | Agency                         | Grant Amount (US\$ M) | Timing         | Description   |
|---|--------------------------------|-----------------------|----------------|---|
|   |                                |                       |                | decentralized installation.   |
| Alternative Livelihood Options to Facilitate Coal Sector Restructuring                                  | ADB                            | 0.3                   | Ongoing 2006   | Assist China National Coal Association with developing and applying of a methodology for identifying alternative economic activities for cities that depend on coal mining as their main source of income and are experiencing decreasing coal reserves.  |
| Energy Conservation and Resource Management   | ADB                            | 0.6                   | Ongoing 2006   | Assist the National Development and Reform Commission identify various options and corresponding requirements for the development of an appropriate policy and regulatory framework to promote and implement efficiency power plant project (EPP).  |
| Capacity Building for the Rapid Commercialization of Renewable Energy in China                          | UNDP/ GEF/ AusAID/ Netherlands | 13.678                | On-going       | Promotion of the widespread adoption of renewable energy technologies in China by removing a range of barriers to increased market penetration of the technologies. Strengthening the capacity of China to shift from the supply-orientated technology deployment to demand-driven, investor- and consumer-friendly approaches. |
| Barrier Removal for Efficient lighting Products and Systems   | UNDP/ GEF                      | 8.135                 | On-going       | Addressing identified market barriers to widespread use of energy efficient lighting in China by upgrading of Chinese lighting products, increased consumer awareness of, and comfort with, efficient lighting products and an established vibrant, self-sustaining market in efficient lighting products and services.         |
| Barrier Removal for the Widespread Commercialization of Energy Efficient CFC Free Refrigerator in China | UNDP/ GEF                      | 9.617                 | On-going       | Promotion of the widespread commercialization of energy efficient refrigerators by removing technical, market, commercial, information and other barriers to increased market penetration of the technologies and products.   |
| Building Capacity for the Clean Development Mechanism in China  | UNDP/ UNF/ NORAD/ IMET         | 1.183                 | 2003-2006      | Strengthen government institutions' ability, provide stakeholders the skills and knowledge, develop real CDM projects, and disseminate information on the CDM development both internationally and domestically.  |
| Developing Interconnection of Nation-wide Electricity Network and Improving Energy Efficiency in China  | UNDP                           | 0.8                   | 2004-2007      | Policy, regulatory, and technology studies in realizing the strategy of "Western Electricity Sent to the East", "Mutual Supply of North and South", and the development of the national grid interconnection.   |
| Establishment of a U.S.-China Natural Gas Institute   | USTDA                          | 0.5                   | Ongoing - 2006 | Technical assistance to establish the curriculum, which could focus on topics such as production, distribution, pricing, and regulatory issues, for the U.S.-China Natural Gas Institute.   |
| Shanghai Power Reliability Feasibility Study  | USTDA                          | 0.4                   | Ongoing - 2006 | A feasibility study to examine the Shanghai Municipal Electric Power Company distribution systems, determine the technical enhancements needed to improve quality and reliability, and provide an implementation plan.  |

|  | Agency                        | Grant Amount (US\$ M) | Timing             | Description   |
|--|-------------------------------|-----------------------|--------------------|---|
| Coalbed/Coal Mine Methane Power Plant Feasibility Study    | USTDA                         | 0.5                   | Ongoing            | A technical assistance program for Shanxi Jincheng Anthracite Coal Mining Group Company on the development of a 120-megawatt (MW) power plant that will use coal bed methane (CBM) and coal mine methane (CMM) from the Sihe mine site as a feedstock..   |
| Shenyang Polygeneration Project Feasibility Study          | USTDA                         | 0.5                   | Ongoing            | A feasibility study to examine an integrated coal gasification, power generation and district-heating project in Shenyang, using advanced coal utilization and processing technology.   |
| China Southern Power Grid Emergency Management System      | USTDA                         | 0.5                   | Ongoing            | Technical assistance for the China Southern Power Grid Co., Ltd. in the implementation and procurement of an EMS as well as associated communication equipment for a regional power grid in Southern China.   |
| PetroChina Pipeline Preservation Project Feasibility Study | USTDA                         | 0.3                   | Ongoing            | This Feasibility Study and demonstration for PetroChina will involve a technology that involves using electric field measurements to determine corrosion and the presence of illegal taps in buried pipelines.  |
| China Energy 2020 study                                    | WB<br>WB executed ESMAP funds | 0.025<br>0.150        | On-going           | A joint policy paper at the request by the Development Research Center (DRC) outlining an implementation strategy for addressing the energy security concerns of the Government under the objectives approved by the State Council.   |
| PPIAF – China Competitive Power Markets                    | WB<br>WB-managed PPIAF funds  | 0.095<br>0.525        | On-going           | A strategy to transform existing generation assets and companies that are wholly/partially owned by regional and provincial power companies into multiple independently owned firms, in order to create the basis for competitive generation markets in China.  |
| Indoor Air Pollution                                       | WB/ESMAP                      | -                     | On-going 2002-2006 | Design and implement local initiatives that would enable rural communities in Shaanxi and Inner Mongolia provinces of China with large rural and poor populations and harsher climate to develop alternative cost-effective and affordable household energy interventions (improved stoves, better ventilation, cleaner fuel. |
| <b>2. Projects</b>   |                               |                       |                    |   |
| Acid Rain Control and Environmental Improvement            | ADB                           | 147                   | On-going           | Improve energy efficiency and reduce emissions at six industrial facilities, restore ecological areas damaged by acid rain, institutional strengthening for acid rain control.  |
| Heibei Zhanghewan pumped storage power station             | ADB                           | 144                   | On-going           | Building of pumped storage power station and connecting transmission lines to retire old coal powered peaking plants.   |
| Shen-Da Power Transmission and Grid Rehabilitation         | ADB                           | 100                   | .Near completion   | Build North-South transmission line in Liaoning province, retire old coal plants, and support provincial power sector reform.   |
| Gansu clean energy development                             | ADB                           | 35                    | On-going           | Building of 98 MW run-of-river hydro plant, and improvement of transmission capacity and management of supply to nearby towns.  |
| Liaoning Environment                                       | ADB                           | 100                   | Approved in        | Capture of coal bed methane for urban heating   |

|   | Agency | Grant Amount (US\$ M) | Timing            | Description  |
|---|--------|-----------------------|-------------------|--|
| Improvement Project                                   |        |                       | 2005              | in Liaoning and for GHG reduction.   |
| Coalbed Methane – GHG abatement (Shanxi)              | ADB    | 150                   | 2005              | Capture of coalbed methane for urban heating in Jianxi, and for GHG reduction. CMM-fired power plant is financed under ADB's CMM Development Project.  |
| More Efficient Greenhouses                            | DGIS   | 0.6                   | On-going          | Activity Implemented Jointly with the Shougang Municipal Agricultural Committee and the Netherlands Energy Research Foundation to raise productivity and energy-efficiency of typical Chinese greenhouses.   |
| Promotion of rural renewable Energy in Western China. | DGIS   | 6.4                   | 01/2003 – 12/2007 | Promotes the development and utilization of rural renewable energy improving rural living conditions, protecting the environment and promoting local economy development. Through 14 demonstration villages different models of RE will be demonstrated (spread over 7 counties). Special focus on wind energy, biogas electricity generation and solar systems. Project partners are the Ministry of Agriculture, Ministry of Commerce, China Association of Rural Energy Industry (Carei). |
| Anhui Environmental Improvement Project               | JBIC   | 173.35                | 2007              | Development of natural gas supply to eight cities, to replace coal for air quality improvement.  |
| Beijing Environmental Improvement Project             | JBIC   | 83.72                 | 2007              | Replace small coal boilers with natural gas cogeneration equipment for air quality improvement and CO2 reductions.   |
| Henan Environmental Improvement Project               | JBIC   | 180.24                | 2008              | Development of natural gas supply to five cities, to replace coal, for air quality improvement.  |
| Hubei Small-Sized Hydropower Project                  | JBIC   | 85.49                 | 2006              | Development of 8 small dams with total hydropower capacity of 126 MW.  |
| Shandong Tai'an Pumped Storage Power Station Project  | JBIC   | 168.15                | 2007              | Building of a 1000 MW pumped storage power plant to replace coal peaking plants, for enhanced grid reliability, efficiency improvements, and environmental improvements.   |
| Shanxi Xilongchi Pumped Storage Power Station Project | JBIC   | 217.1                 | 2010              | Building of a pumped storage power plant to replace coal peaking plants, for enhanced grid reliability, efficiency improvements, and environmental improvements.   |
| Xinjiang Yining City Environmental Renovation Project | JBIC   | 55.1                  | On-going          | Construction of water supply system, wastewater treatment system, garbage disposal, district centralized heating system and natural gas utilization system, and afforestation of ecological shelter forest.  |
| Solar Energy Program                                  | KfW    | 34.9 (Grant)          | On-going          | Rural Electrification through PV Hybrid Systems in four Provinces (Gansu, Qinghai, Xinjiang, Yunnan).  |
| Xiaogushan Hydropower Plant (XHP)                     | PCF    | 10 (Grant)            | Approved          | XHP project is to be constructed by PRC in Zhangye City, Gansu Province to ease acute power shortage in Zhangye city and substitute a coal-fired power plant that would have been installed in the absence of XHP.   |
| Jincheng Coal Bed Methane Project                     | PCF    | 10 (Grant)            | Ongoing           | Jincheng Coal Bed Methane Project is to be located in Jincheng City, Shanxi Province. The project will address the serious environmental issue created by the extraction and release of  |

|  | Agency | Grant Amount (US\$ M) | Timing                                 | Description   |
|--|--------|-----------------------|--|---|
|  |        |                       |  | the coal bed methane from coal mining through the collection of gas and construction by PRC of the 120 MW gas-fired power plant.  |
| CN-2nd GEF Energy Conservation           | GEF    | 26 (Grant)            | Ongoing<br>Closing date: June 30, 2010 | The project includes three components: 1) capacity building, and technical assistance program to assist China's nascent Energy Management Company (EMC) develop businesses; 2) support central coordination, monitoring and reporting of project activities; and, 3) the EMC loan guarantee program is designed to provide emerging EMCs with enhanced opportunities to receive loans from domestic banks, and to engage the banks in the development of a sustainable EMC industry.  |
| CN-GEF-Renewable Energy Scale-Up Program | GEF    | 40.22                 | Ongoing<br>September 30, 2010          | Pilot program under GEF/WB strategic program for renewable energy. The program aims to overcome barriers to large scale of large scale use of renewable energy for power generation by assisting China to develop a modern industrial base and market infrastructure for mature technologies such as wind power and small hydropower.   |
| CN-GEF-Heat Reform & Bldg Epy Eff.       | GEF    | 18 (Grant)            | Ongoing<br>Closing date: Dec. 31, 2011 | <p>The project has the following three components: Component 1) integrated measures that simultaneously address the thermal integrity of buildings, the operational efficiency of heat supply systems, the provision of means for heat control by consumers, and the implementation of heat metering, cost-based heat pricing and consumption-based heat billing.</p> <p>Component 2) bring the best national and international expertise to bear on issues surrounding implementation of reform and development of new technical approaches, coordinate and guide implementation of local project activities, undertake central project management and monitoring functions, and disseminate successful ideas and results outside of participating cities.</p> <p>Component 3) will promote simultaneous development of both heating sector reforms and building energy efficiency improvements in 4-6 additional northern Chinese municipalities, achieving broad, national impact.</p> |
| Energy Conservation                      | IBRD   | 63                    | Ongoing<br>Closing date: June 30, 2006 | Introduction and development of new project financing mechanism<br>And market-oriented institutions to implement energy conservation projects in China.   |
| Renewable Energy Development Project     | IBRD   | 100                   | On-going<br>Closing date               | The project consists of: (a) installation and operation of grid-connected wind farms on two   |

|   | Agency | Grant Amount (US\$ M) | Timing  | Description  |
|---|--------|-----------------------|---|--|
|   |        |                       | June 30, 2007                                 | sites in Shanghai, totaling 20 MW of installed capacity; (b) supply of about 10 MW of PV systems to 300-400,000 households and institutions in remote areas of six Northwestern provinces; and (c) support for technology upgrading to improve the performance and reduce the costs of solar PV technologies in China. Institutional strengthening is an integral part of the project, to remove barriers to market development and commercialization of the technologies.   |
| The East China (Jiangsu) Power Transmission Project | IBRD   | 250                   | On-going<br>Closing date: :<br>March 31, 2006 | The project components are as follows: a) System expansion covers the planning, design, supply, and construction of approximately 993 km of 500 kV (kilowatt) transmission lines; the construction of five new 500 kV substations and the expansion of two existing 500 kV ones; and the reinforcement of Nanjing's urban transmission system. b) Implementation assistance will support local and international consulting services for engineering and construction management. c) Technical assistance for improved interprovincial power exchange policies and procedures will develop an incentive framework and institutional basis for resource pooling and efficient power trading between provincial systems. d) Technical assistance for improved accounting and financial management systems. e) Institutional development and training will provide training programs, and support the procurement and installation of required hardware and software for power system analysis. |
| Tongbai Pumped Storage Project                      | IBRD   | 320                   | Ongoing<br>Closing date: Dec 31, 2007         | (i) develop Tongbai pumped storage project – 1200 MW based on existing reservoir<br>(ii) 500 KV transmission line reinforcement<br>(iii) Power market and regulatory system establishment and associated reforms.  |
| Renewable Energy Scale-up Program (CRESP)           | IBRD   | 87                    | Ongoing<br>Closing date<br>Sep 30, 2010       | The project will include the following: Mandated Market Policy MMP research and implementation support; technology improvement for wind and biomass; and long-term capacity building. Two subcomponents: in Fujian, a 100 MW wind farm at Changjiang'ao, Pingtan Island. In Jiangsu, a 25 MW straw-fired biomass power plant at Mabei Village, Rudong County.  |
| Hubei Hydropower Development in Poor Areas Project  | IBRD   | 105                   | Ongoing<br>Closing date:<br>Dec. 31 2008      | Each of the four project components at four sites (Dongping, Najitan, Songshuling, and Xiakou):. (i) supports the building of hydroelectric power stations, which includes either a single- or multi-purpose arch or gravity dam, surface powerhouses, step-up substations, and transmission lines; (ii) carries out a program of institutional strengthening of power companies; (iii).   |

|                               | Agency | Grant Amount (US\$ M) | Timing                                   | Description  |
|-------------------------------|--------|-----------------------|--|--|
|                               |        |                       |  | develops a plan for poverty alleviation.   |
| Yixing Pumped Storage Project | IBRD   | 145                   | Ongoing<br>Closing date:<br>Dec 31, 2009 | 1) construction of the Yixing pumped storage power plant, a new upper reservoir, new main dam and subsidiary dam, and the underground powerhouse; 2) assistance to the restructuring of the power sector; and 3) construction of a double circuit transmission line to connect the Yixing pumped storage plant to the East China 500 KV network. |

Table II.C: Pipeline

|  | Agency          | Grant Amount (US\$ M) | Timing    | Description   |
|--|-----------------|-----------------------|-----------|---|
| <b>1. Studies</b>  |                 |                       |           |   |
| Gansu Heihe Hydropower Development                       | ADB             | 0.5                   | 2006      | Development of 2 hydropower subprojects at Erlongshan and Dagushan sites for a total of 110 megawatt capacity.  |
| Energy Conservation and Resource Management              | ADB             | 0.3                   | 2006      | Help the Ea implement sustainable energy development strategy   |
| Support for Establishing a Clean Development Fund        | ADB             | 0.6                   | 2006      | Will promote sustainable development and ensure effective implementation of the country's obligation under United Nations Framework Convention on Climate Change.   |
| Coalmine Safety Study                                    | ADB             | 0.6                   | 2006      | Will help reduce coalmine accident to meet the Government's target of solving safety problem  |
| Risk Sharing under Power Purchase Agreements (PPAs)      | ADB             | 0.1                   | 2006      | TBD   |
| Rural Electrification Development Project                | ADB             | 0.5                   | 2006      | To improve the efficiency of power supply, reduce adverse environmental impacts associated with energy production and use and providing electricity to the poor.  |
| Beijing clean energy development study and demonstration | ADB             | 0.5                   | 2005      | Study of potential energy efficiency improvements, pollution abatement strategies and preparation of a demonstration project to improve air quality by 2008 Olympics.   |
| Study on inter-provincial acid rain control              | ADB             | 0.6                   | 2006      | Exploration of emissions trading as a means of reducing interprovincial acid rain.  |
| Power sector restructuring III                           | ADB, Source TBD | 0.6                   | 2006      | Development of PRCs electricity regulatory framework.   |
| China End-Use Energy Efficiency Project (EUEEP)          | UNDP/GEF        | 17                    | 2004-2007 | Support a 12-year strategic plan developed by the Chinese government to dramatically improve the efficiency of its major end-use sectors: buildings and industry. Foster a strategic approach to developing, implementing and enforcing a comprehensive and effective energy conservation policy and regulatory system consistent with the objectives of the Energy Conservation Law of 1998. |
| Power Industry Study                                     | WB              | 0.1                   | 2006      | Assessment of the power sector demand side resources available, related economic and environmental benefits, designing of load  |

|   | Agency         | Grant Amount (US\$ M) | Timing    | Description   |
|---|----------------|-----------------------|-----------|---|
|   |                |                       |           | management and energy efficiency programs, tariff mechanisms, and recommending how to better integrate demand side management into the power sector planning and investment process.  |
| China-universal access to electricity           | WB<br>WB-ESMAP | 0.055<br>0.345        | 2006      | Develop a framework for delivering universal electricity access in China by 2020.   |
| China- sustainable coal sector development      | WB<br>WB-ESMAP | 0.5<br>0.35           | 2007      | Improvement of the efficiency and performance of the coal sector through the creation of the enabling conditions for environmentally and socially sustainable development.  |
| Heat Pricing Study                              | ESMAP          | tbd                   | 2007      | Assist the Chinese Government to pilot and develop a national policy framework for heat pricing and billing, with special attention to preserving access to quality heating services for the poor.  |
| <b>2. Projects</b>                              |                |                       |           |   |
| Inner Mongolia Environment Improvement          | ADB            | 110                   | 2006      | Will support environmental improvement in IMAR: (i) improvement in efficiency and rehabilitation of natural gas and central heating supply and closure of small-fired boilers towards energy conservation, and (ii) improvement in wastewater treatment and utilization.  |
| Renewable Energy in Rural Areas                 | ADB            | 100                   | 2006      | Rural electrification and improvement of policy environment for promotion of renewables in Inner Mongolia, Sichuan, Shaanxi.  |
| Rural energy sector development project         | ADB            | 80                    | 2006      | Expansion of service to off-grid areas using cleaner alternative fuels. Promotion of small-scale hydro through adjustment of market incentives.   |
| Energy Conservation and Resource Mgmt           | ADB            | 100                   | 2007      | To help the EA implement sustainable energy development strategy  |
| Gansu Heihe Hydropower Development              | ADB            | 50                    | 2007      | TBD   |
| CN-Renewable Energy II (CRESP II)               | IBRD/ID A      | 86.4                  | 2006      |   |
| CN-Shandong Flue Gas Desulfurization            | IBRD/ID A      | 104                   | 2007      |   |
| China End-Use Energy Efficiency Project (EUEEP) | UNDP/ GEF      | 17                    | 2004-2007 | Support a 12-year strategic plan developed by the Chinese government to dramatically improve the efficiency of its major end-use sectors: buildings and industry. Foster a strategic approach to developing, implementing and enforcing a comprehensive and effective energy conservation policy and regulatory system consistent with the objectives of the Energy Conservation Law of 1998. |